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A Critical Review of the Replacement Cost Concept.

Germain Boniface Boer

Louisiana State University and Agricultural & Mechanical College

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A CRITICAL REVIEW OF THE REPLACEMENT COST CONCEPT

A Dissertation

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in partial fulfillment of the
requirements for the degree of
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in

The Department of Accounting

by
Germain Boniface Böer
B.S., St. Edward's University, 1960
M.B.A., Texas Technological College, 1961
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ABSTRACT

The problem of fluctuating asset values has plagued accountants for over a century, and many alternatives have been offered as an answer to this dilemma. Among the solutions offered is the use of replacement cost, the object of this study. This cost concept, as revealed by an analysis of its historical development, has received its widest acceptance during periods of abrupt changes in the price level both in the United States and in foreign countries, particularly in France and Germany.

Replacement cost utilization, however, also seems to have some validity even when there are no abrupt changes in the price level. Consequently, this study undertakes an analysis and evaluation of the numerous propositions offered by accountants to support and to oppose the use of replacement cost.

As part of this analysis of the arguments about replacement cost, a workable definition of replacement cost is developed in order to eliminate some of the confusion surrounding the use of this term. The definition evolved encompasses most of the attributes presently attached to the term; for example, replacement cost is often used synonymously with current market value, adjusted historical cost, and future cost to replenish the asset. The term, then, is described in this study as the cost to replace the earning potential of an asset presently owned by the firm.

Such a definition renders impotent many of the arguments offered against replacement cost, particularly those resting on the assumption that replacement cost applies only to the cost of replenishing an asset on some future date. However, much of the reasoning pressed against the general acceptance of replacement cost is more solidly based. Many accountants oppose replacement cost because its utilization violates the principles of cost and conservatism; and, in addition, the difficulty of ascertaining a valid and objective replacement cost value is often cited as an objection to its use in the accounting statements.

A number of accountants, nevertheless, feel that replacement cost is a means of reflecting more significant information in the financial statements. They argue that the current depreciation charge obtained through replacement cost depreciation and the current cost of goods sold figure revealed in the income statement are two of the principal benefits accruing to the firm that uses replacement cost. Furthermore, because the replacement cost balance sheet indicates the amount of capital actually employed by the business, analysis of the earning power for the particular firm using this cost in its balance sheet is more meaningful than if historical cost is used.

These latter arguments illustrate the prevalent theme in most of the propositions favoring replacement cost: the importance of up-to-date information in the financial statements. In fact, it appears that the essential issue in the replacement cost debate is

whether or not current information should take precedence over widely accepted accounting concepts. Some accountants, for example, maintain that current information is of prime importance and must precede all other considerations; however, others argue that traditional accounting concepts--historical cost and conservatism, for instance--must not be abandoned.

An analysis of these arguments reveals that the major issue in the debate concerns the value of current information versus the benefits secured from adherence to generally accepted accounting concepts. In addition, the analysis provides an insight into the reasoning advanced in support of the idea as well as an appreciation of the objections to the use of replacement cost. The debate over the adoption of replacement cost, however, continues.

CHAPTER I

INTRODUCTION

Price fluctuations, whether large or small, have generally been either ignored or only reluctantly recognized by accountants in the preparation of the two principal financial statements, the balance sheet and the income statement. Although this opposition to the recognition of price fluctuations has a negligible effect on the information presented in the two statements during periods of stable prices, during a period of rapidly changing prices the information presented by the statements may be quite misleading. Recognizing this possible distortion, some forward-looking accountants have advocated that changing prices be given recognition through the use of replacement cost.

I. A RECURRING ARGUMENT

The advent of those accountants advocating that price level changes be recognized, either through the use of appraisals or replacement cost, is not a recent phenomenon. As early as 1857, arguments were being advanced in favor of the use of replacement cost in the financial statements prepared by businesses. In fact, the 1857 German Commercial Code provided that assets and liabilities be shown at the values assignable to them on the date of statement

preparation.¹ This provision, however, did not remain in effect very long; the opponents of replacement cost, who were even then quite numerous, marshaled their forces and succeeded in changing the Code to allow only historical cost on the statements.

Almost three-quarters of a century later the merits of replacement cost as a basis for asset valuation and income determination were being debated in the United States. The emergence of this controversy among American accountants and businessmen was given impetus by the steadily increasing prices of the 1920's. The rising prices, however, did not continue; they were brought to an abrupt halt by the onslaught of the depression.

This reversal in the trend of prices, nevertheless, did not cause the accountants to abandon their push for the use of replacement cost. Many of them still advocated its use; however, they were now involved in a controversy over the acceptability of writing down asset costs--the very costs accountants were attempting to write up only a few years earlier--instead of increasing asset values on the books. Thus, the rapidly falling prices of the depression like the gradually rising ones of the previous ten years generated a new round of arguments about the merits of replacement cost. This new burst of discussion grew weaker gradually as the economy recovered from the depression, until in the early 1940's there was only an occasional

¹Joseph L. Weiner, "Balance-Sheet Valuation in German Law," The Journal of Accountancy, XLVIII (September, 1929), 196.

mention of replacement cost in an public utility journal or in an engineering journal. The accountants, however, were silent.

They remained silent for only a short time; after the end of World War II the accounting literature began to show a number of articles on the subject of replacement cost. The intensity of debate in this period, although quite strong at its inception, began to diminish in strength until about 1958.

The 1960's provide the setting for a resurgence of the replacement cost concept. Many accountants who realized the responsibility of the accounting profession to the investing public began to recognize the weaknesses contained in the data presented on the balance sheet and the income statement. They were particularly concerned about the distortions arising from a long period of continually rising prices: the misstatement of long-term assets; the inadequacy of depreciation charges; and the misleading results of using lifo, particularly the inventory cost figure it presents on the balance sheet.

This brief discussion has attempted to show that the replacement cost concept is no newcomer to the financial scene, but rather that it is a much debated and much discussed concept that has been in existence for at least a century.

II. SURVEY OF THE STUDY AND STATEMENT OF THE PROBLEM

Survey of the Study

Because of this persistent and recurring discussion of the replacement cost idea, it seems proper to begin this study of the replacement cost concept with a review of its historical development. This review, although not attempting to make an exhaustive analysis of all environmental factors contributing to the development of replacement cost, surveys some of the major events occurring in the development of this concept.

First the historical background is reviewed, followed by a discussion of basic accounting concepts relevant to the replacement cost doctrine. These basic concepts are discussed in order to provide a background and an analytical framework that can be used to make a meaningful analysis of the arguments presently being hurled back and forth in the debate.

Following the establishment of the basic theoretical framework, this study next reviews and critically examines the many definitions of replacement cost that appear in the literature. Such an examination is necessary in order to dispel some of the confusion surrounding the meaning of the term. Indeed, many authors seem to have only a vague and, at times, confused understanding of "replacement cost." A definition that is used in later portions of this study is developed in order to help clear up some of this confusion.

Next, an inquiry is made into the financial consequences of using replacement cost for asset valuation. In the first part of this examination a review is made of the results of using replacement cost for current asset valuation. This is followed, in the second part, by a study of the consequences of using replacement cost in long-term asset valuation.

Statement of the Problem

Following the examination of using replacement cost, an intensive analysis is made of the replacement cost arguments. In order to ascertain whether they are in accord with good accounting theory, the arguments are analyzed by using the information developed in the earlier parts of the study.

In brief, this study attempts a careful analysis of the replacement cost concept in its development and use with particular emphasis on the theoretical soundness of the concept. In other words, the study tries to answer the question: Can replacement cost be accepted by accountants as a useful tool, or must it be rejected as unreasonable and impractical?

CHAPTER II

HISTORICAL REVIEW OF THE REPLACEMENT COST CONCEPT

As already mentioned, this study begins with a brief review of some of the representative developments in the evolution of the replacement cost idea. The first part of this chapter examines the European contributions to the historical background of replacement cost; such as, the early beginnings, the experience of the 1920's, and the more recent developments on the continent.

In the second part of the chapter, a survey is made of important historical events occurring in America; for instance, public utility rate discussions, the boom of the twenties, the depression of the thirties, and some current developments. This review of replacement cost history should help to provide a chronological perspective that will be useful when a more thorough investigation of the replacement cost concept is made in a later part of the study.

I. EUROPEAN ORIGIN

German Contributions

The early beginnings. Though the replacement cost concept has probably been in existence for many years, the 1857 German Commercial Code probably provides the first instance in which its use in accounting statements was given legal sanction. In that year, a conference of the independent German states was convened

with the object of drafting a uniform Commercial Code, a Code that would be binding on all the German states. Initially, the proceedings at the conference progressed calmly, and they remained peaceful until Prussia proposed that inventories be shown on the balance sheet at the lower of cost or market.

This proposal was immediately and vigorously attacked by accountants from the other independent states. They objected to the specific wording of the clause, insisting that the purpose of the conference was to formulate broad general guidelines, not minutely detailed rules. Thereupon, the delegates, probably after a long and heated argument, decided to substitute for the lower-of-cost-or-market proposal one that was less restrictive; namely, that assets be shown on the balance sheet at the value ascribed to them on the statement date.¹

Even though this value ascribed to the assets on the balance sheet date was not called replacement cost, the means used to determine it (current market value and appraisals) are very similar to the methods of determining current replacement cost suggested by modern accountants.

This early use of current values in the balance sheet, while perhaps a step forward in the presentation of meaningful accounting information, was nevertheless subject to many abuses. A number of

¹Joseph L. Weiner, "Balance-Sheet Valuation in German Law," The Journal of Accountancy, XLVIII (September, 1929), 196.

speculators and promoters took advantage of the loose wording of the Code and prepared statements on which the expected selling price--usually an optimistic guess--was used as the basis for valuing assets. These highly exaggerated asset values enabled the promoters to float issue after issue of stock. Not only were large issues of stock unloaded on unsuspecting investors; but these investors, in turn, started speculating with their recently purchased stock. Then began several years of speculation with stock prices racing upward until the crash in 1873 that sent a shock wave of panic throughout the economy.

In the aftermath of the collapse, the financially beaten investors raised a loud cry for vengeance against the wrongdoers who had caused the calamity. As a result, the German government conducted an investigation into the causes of the buoyant rise and abrupt fall of the stock market. This inquiry determined that the vague wording of the Commercial Code was a factor contributing to the stock market disaster; therefore, the loosely worded clause contained in the Code was replaced with a more succinct statement--asset values cannot exceed original cost.²

The post World War I experience. The next significant discussion in the German history of replacement cost took place after the close of the first World War. In the years following this war, the German economy was beset by inflationary price movements which,

²Ibid., 199.

initially at least, slowly raised the price level; but this slow upward movement of prices did not continue for long, and prices rose so fast near the end of the inflationary spiral that a pack of cigarettes could buy more groceries than a bushel of money.

Obviously, such swiftly changing prices completely nullified the significance of the historical cost asset values carried on the shopkeepers' records. But the asset accounts were not the only ones rendered useless by the inflation; even the revenue accounts presented unreliable information unless adjusted for price changes daily—or even hourly in the final days of the inflation.³

Consequently, German accountants and businessmen were faced with the task of selecting a technique for deflating profits and revising asset values. After searching about for suitable methods, a number of progressive accountants proposed that replacement cost be used to determine asset values and to set sales prices. The method which they suggested would replace historical cost in the accounts with a more current cost, and would deflate profits by providing an up-to-date cost of goods sold figure.⁴ Replacement cost, then, helped solve the problem of reporting realistic business profits and significant asset values during a period of galloping inflation.

³H. W. Sweeny, "Effects of Inflation on German Accounting," The Journal of Accountancy, XLIII (March, 1927), 184.

⁴Ibid.

The decade of the thirties--and later. Probably because of their experience with the hyper-inflation after the first World War, several German accountants even favored the use of replacement cost during periods of relatively stable prices. For instance, Fritz Schmidt, a German accountant, sets forth some forceful arguments in support of the replacement cost concept in an article he wrote for The Accounting Review in 1930. In this article he stresses the fact that replacement cost shows "what is," while historical cost shows "what was."⁵ Another German, Fritz Henzel, in his book, Erfassung und Verrechnung der Gemeinskosten in der Unternehmung (Understanding and Calculating Overhead Cost in the Business Enterprise), published in 1931, suggests that the spread between the selling price of an item and its replacement cost is a better indicator of profit than the difference between selling price and historical cost.⁶

Although there seems to have been some agreement among German accountants on the suitability of using replacement cost in accounting, the government did not look upon it so favorably. Indeed, the Commercial Code of 1937 required all balance sheets to report assets

⁵Fritz Schmidt, "Importance of Replacement Value," The Accounting Review, V (September, 1930), 239.

⁶A. C. Littleton, A Review of Erfassung und Verrechnung der Gemeinskosten in der Unternehmung by Fritz Henzel, The Accounting Review, VI (December, 1931), 324.

at their historical cost.⁷ Thus accountants were once more bound by the historical cost rule.

And historical cost remained satisfactory until the collapse of the German economy near the end of the second World War. In the period following this war the government's printing presses caused a money explosion that rendered historical cost useless. As a result, accountants again found it necessary to select some other cost basis to use in preparing financial statements--they again chose replacement cost.⁸

French Developments

The 1920 period of inflation. France too, like Germany, experienced a wild upward movement of prices during the twenties; and, as in Germany, many of her accountants advocated that the accounting records be adjusted for the changing prices through the use of replacement cost. Consequently, a review of some of these developments is made in the following paragraphs.

The French inflation began in 1914 and lasted until 1927; however, most of its influence was felt during the eight year span from 1919 to 1927 when prices doubled and gave rise to many of the problems usually encountered in a period of inflation: a reduction

⁷E. Kosiol, "Bases of Valuation in German Corporate Balance Sheets," The Accounting Review, XII (December, 1937), 357.

⁸Leo Kennett, "Valuation of Commercial Assets," Canadian Chartered Accountant, LX (March, 1952), 86.

in real earnings for those individuals on a fixed income, a diminution of capital due to inadequate depreciation charges, and a distortion of the values shown in accounting records.

Because accounting attempts to interpret the financial results of businesses, and because accountants try to interpret the outcome of businesses in terms of prices, the quick increase in prices destroyed the reliability of the conclusions obtained from the use of ordinary accounting techniques. Therefore, French accountants began trying to devise some method of converting historical data into current money values so that meaningful information could be presented to management and to the public. Replacement cost was chosen by many accountants to perform this function.⁹

That French accountants should turn to the use of replacement cost as a means of securing accurate financial information is not too surprising, because for many years French importers had relied upon replacement cost as a basis for costing the goods they purchased and sold. Hence, it was quite logical for practicing accountants to apply the same theory to the financial records of other businesses during this period of inflation.¹⁰

The accounting developments. French accountants and businessmen, no doubt because of their knowledge of the techniques used in

⁹Max J. Wasserman, "Accounting Practice in France During the Period of Monetary Inflation (1919-1927)," The Accounting Review, VI (March, 1931), 9.

¹⁰Ibid.

Germany during her inflationary upheavals, developed several procedures for determining the replacement costs they utilized in their record-keeping.

One of the more generally accepted methods, which was also quite unsophisticated, used ordinary historical cost accounting methods in terms of francs for entries to the accounts; but these entries were supplemented by the preparation of a gold franc balance sheet. In other words, orthodox historical costs were entered into the accounts, and these costs were later changed into current costs when the balance sheet was prepared. Every asset was converted to a current cost through dividing its historical cost by the coefficient of the exchange rate between France and some gold standard country, usually the United States.¹¹ In this way, only the balance sheet figures were adjusted, and the French businessman was able to retain historical cost in his accounts, thereby simplifying his record-keeping process. Although the adjusted cost figures derived in this manner might not always be called replacement cost by modern accountants, they were given this title by the French accountants.

Another system, which adjusted the data entered in the accounts as well as the information shown on the balance sheet, provided for entries in terms of paper francs and, additionally, in

¹¹Ibid., 10.

terms of gold francs. This method provided ledger accounts with columns for the paper franc entries and supplementary columns for the gold franc entries.¹² That is, the replacement cost values were actually entered in the accounts along with the historical cost data.

Several other methods of calculating the replacement costs of assets were also used during the inflationary twenties, but they are only variations of the two techniques just discussed and will not be reviewed in this study.

In addition to using replacement cost in the preparation of the balance sheet, many French businessmen applied the same methods to their income statements as well, basing their selling prices upon the replacement cost instead of on the historical cost of production.¹³ Thus, they were able to assure themselves of having sufficient funds available when it was necessary to replenish their inventories.

To be sure, during the period of inflation no individual firm could base its selling prices on replacement costs while its competitors based their prices on historical cost. But such insignificant considerations did not bother the French businessman; he simply banded together with other merchants in trade associations

¹²Ibid., 17.

¹³Max J. Wasserman, "French Enterprise Under Inflation: A Balance Sheet Analysis," The Accounting Review, IX (June, 1934), 135.

and forced all of the members to base their prices on replacement cost.

From this short sketch of the French inflation of the 1920's it seems apparent that French accountants, on the whole, sanctioned the use of replacement cost. This fact is corroborated by the large number of periodicals publishing articles on the subject during the twenties.¹⁴

The postwar action. Again in the late thirties and early forties, France was faced with a speedily rising price level similar to the one that immediately followed the first World War. And once more the historical cost basis of accounting failed to provide adequate information for investors, bankers, and the government.

As a result of this dearth of meaningful financial information, the French government promulgated a series of laws and decrees which provided businessmen with an alternative to historical cost--historical cost adjusted by a price index.¹⁵ Accordingly, fixed asset values and the accompanying depreciation reserves were increased in order to bring their recorded values more closely in line with present values, i.e., replacement cost.

¹⁴For some of these sources see Max J. Wasserman, "Accounting Practice in France During the Period of Monetary Inflation (1919-1927)," and "French Enterprise Under Inflation: A Balance Sheet Analysis."

¹⁵John Kennerly, "Revaluation of Fixed Assets in France," The Accountant, CXIX (December 11, 1948), 469.

The accounting profession in Germany and France seemed very willing to use replacement cost whenever the historical cost procedure failed to provide adequate information. However, the English accountants were not so eager to embrace replacement cost as an alternative to their traditional procedures.

English Developments

Perhaps because of its history of relatively stable prices, or maybe because of the inherent conservatism of the British character, no English contribution to the doctrine of replacement cost was made until the 1950's. It was in 1952 that several bodies of English accountants met to discuss the problem of price level changes and accounting. As a result of these discussions one group of accountants, the Institute of Chartered Accountants in England and Wales, forcefully reaffirmed its belief in the historical cost doctrine; but the other three accounting bodies did not agree with this reaffirmation.¹⁶

These three professional groups--the Institute of Chartered Accountants of Scotland, the Society of Incorporated Accountants and Auditors, and the Association of Certified and Corporate Accountants--set themselves adrift from the historical cost principle by embracing,

¹⁶David Solomons, "Accounting for Changing Price Levels: Recent British Views," The Journal of Accountancy, XCVII (June, 1954), 704.

in one form or another, some application of the replacement cost doctrine.

One of them, the Society of Incorporated Accountants and Auditors, released a statement to its members setting forth specific instructions for the application of replacement cost to accounting practice.¹⁷ This statement named several accounts that should be adjusted for replacement cost: specifically, fixed asset accounts, depreciation accounts, and inventory accounts. In order to adjust these accounts, the accountant is instructed to use current cost to replace the asset, or if this cost is not available, he may use a suitable price index to adjust the account.¹⁸

II. AMERICAN ORIGINS

From this quick overview of European developments relevant to replacement cost, the study now turns to a consideration of similar American events. In America, as in Europe, fluctuating prices provided the catalyst for the replacement cost discussions that appeared from time to time.

Early Beginnings

Public utility rate cases. In this country many of the earliest arguments about the use of replacement cost did not involve

¹⁷"Official Decisions and Releases: The Accounting Implications of Changing Money Values," The Journal of Accountancy, XCVII (February, 1954), 248-53.

¹⁸Ibid., 253.

any theoretical accounting concepts; instead, the debates revolved primarily around the rate cases heard before public utility regulatory agencies, particularly the Interstate Commerce Commission. It was in the hearings before these commissions that replacement cost first received prominence in America.

However, before delving into the early history of these cases and their emphasis on replacement cost, it is necessary to set out the objectives of the rate making bodies in order to understand the importance of replacement cost in the rate cases. The task of the rate commission is to set the rates charged to the consumer by the regulated company high enough so that a reasonable rate of return can be earned on its investment.

In determining the rates to be charged by the regulated company, the regulatory commission develops a rate base which is then multiplied by a specific percentage to ascertain the total return the utility is entitled to earn. Deciding on the amount of this rate base is not easy: the regulating body must determine whether to use the total historical costs of the company's assets, whether to use replacement cost as a substitute for historical cost, or whether to use a combination of the two.

This perplexing problem provides the nucleus for many of the early discussions relating to replacement cost. These early disputes did not pertain to methods of reporting current values in the principal accounting statements; rather, they had to do with the rate making activities of regulatory agencies--activities that are

usually devoid of theoretical accounting considerations. Nevertheless, these rate making discussions about replacement cost did have some influence on accountants, so they will be reviewed in the following pages.

The constant decline in the price level from a peak attained near the close of the Civil War to a low reached about the end of the century created a problem for the rate making bodies.¹⁹ This problem originated because most of the railroads operating in the latter half of the nineteenth century were using facilities built in the high price era prevailing near the close of the war between the states.

These railroads, in order to maximize the return on their investment, naturally maintained that historical cost was the proper cost to use in establishing the rate base; but the state regulatory commissions, with the power to set rates and the duty to see that consumers received railway service at a reasonable price, insisted on using reproduction cost (replacement cost) in setting up the rate base. This debate about which cost to use in the rate base remained unsettled until the turn of the century.

Then, in the year 1898, the Supreme Court handed down its ruling in Smyth v. Ames: a decision in which the Court stated that in setting up the rate base some consideration should be given to

¹⁹Maurice W. Lee, Economic Fluctuations (Homewood: Richard D. Irwin, Inc., 1955), 130.

the fair value of the property.²⁰ Hence, the use of historical cost was not given complete approval by the Court, and the fair value, or replacement cost, was given some emphasis.

However, this ruling did not completely settle the issue, and in 1914 the railroads and the rate making bodies were still arguing about the merits of replacement cost and historical cost; but because of the now rising price level, the railroads were supporting the use of replacement cost in the rate base, and the commissions were extolling the merits of using historical cost as a rate base.²¹

Accounting interest in replacement cost. These debates between the railroads and commissions probably exerted some influence on the accountants who were gradually becoming aware that the vacillating prices were affecting the significance of the cost values presented on the balance sheet. Realizing this distortion, some of the more progressive accountants, as early as 1919, argued for the presentation of current costs in the balance sheet, and even further, they pressed for the calculation of depreciation charges on the basis of these current costs.²²

Yet this view that replacement cost should be used in preparing the accounting statements was not openly welcomed by all

²⁰Smyth v. Ames, 16 U.S. 466.

²¹Clair Wilcox, Public Policies Toward Business (Chicago: Richard D. Irwin, Inc., 1955), 527.

²²J. Bauer, "Renewal Costs and Business Profits in Relation to Rising Prices," The Journal of Accountancy, XXVIII (December, 1919), 414.

accountants; to be sure, it was opposed by a large number of them. One of the typical criticisms leveled against replacement cost when it was first introduced to American accountants was presented in the Students' Department of The Journal of Accountancy. The editor of this department pointed out that recording appreciation is an anticipation of profit; and moreover, he continued, many assets that are written up to current value have to be written down later.²³ This argument is repeated many more times by accountants whenever the subject of replacement cost is discussed.

The Decade of the Twenties

During the depression of 1920 to 1921, accountants did not think about replacement cost very much. Nevertheless, with the coming of prosperity and relatively stable prices, the ghost of replacement cost appeared to haunt the accountants.

Accounting acceptance of replacement cost. A letter to the editor in one of the 1921 issues of The Journal of Accountancy urged that depreciation charges be based on replacement cost, especially in periods when the costs to replace the assets are higher than their original cost; that is, assets currently being used which were

²³Seymour Walton, (ed.), Students' Department, "Increase in Market Price of Fixed Assets," The Journal of Accountancy, XXVI (November, 1918), 393.

purchased in prewar periods and now have a much higher replacement cost.²⁴

And two years later in the same journal, a writer, in commenting on the treatment of appreciation, said that it was no longer necessary to argue about the acceptability of recognizing appreciation; it was now a generally accepted practice.²⁵ Further, this author presented a method of including assets on the statements at their appraisal values.

According to this procedure, the original cost figure is presented on the balance sheet with the accumulated depreciation subtracted in the normal manner. This is followed by the appraised value of the asset and the accompanying accumulated depreciation based on the appraisal value. Consequently, both the cost value and the replacement value are shown on the balance sheet.²⁶

During the twenties another development in the replacement cost controversy took place at the annual meeting of the American Institute of Accountants in 1927. One of the principal speakers at this meeting severely criticized the assembled body of accountants for its stand on the use of historical cost. In particular, he condemned the accountants for taking such an arbitrary stand on the

²⁴J. M. Chenoweth, "Depreciation of the Dollar," The Journal of Accountancy, XXXI (June, 1921), 472.

²⁵Albert G. Moss, "Treatment of Appreciation of Fixed Assets," The Journal of Accountancy, XXXVI (September, 1923), 161.

²⁶Ibid., 165.

valuation of assets. Furthermore, the speaker went on, this stand on asset valuation is not supported by logical arguments, but by a loud reiteration of the historical cost position.²⁷ Thus, it seems that some accountants were voicing opinions in favor of using replacement cost during the twenties.

Rate making discussions. Although the accountants seemed to recognize the benefits of adjusting historical cost to reflect replacement values, the regulatory commissions did not concur with this view in their decisions. They insisted that rates be set mainly on the basis of historical cost and that replacement cost be ignored.

However, during the twenties the Supreme Court set aside many rate decisions because reproduction cost was not given enough consideration in establishing the rate base. For instance, in 1929 the Court rejected the valuation of railroad properties that had been made over a period of years by the Interstate Commerce Commission because replacement cost was ignored. This was the well known O'Fallon case.²⁸

Even though in this case the Court required the rate making agencies to consider replacement cost in their decisions, it failed to set forth specific instructions on how much weight replacement

²⁷Henry Rand Hatfield, "What is the Matter with Accounting?" The Journal of Accountancy, XLIV (October, 1927), 273.

²⁸St. Louis and O'Fallon Ry. Co. v. U.S., 279 U.S. 461.

cost should be given in setting rates. The regulatory commissions knew that replacement cost should be given some consideration; but how much? Thus the problem of valuing assets for rate making purposes was left to be settled in the thirties.

Through the decade of the twenties there had been generally stable prices with only minor fluctuations in the overall price level; on the other hand, the next ten-year period was marked by violent shifts in prices, initiated by the sudden drop at the start of the depression.

The depression decade. This unexpected fall in prices from what had been considered a permanently stable price level generated much concern among the accountants. They were especially worried about the misleading asset values appearing on the balance sheet; and moreover, they were displeased with the technique of calculating depreciation on historical cost. This depreciation charge, which accountants and businessmen were trying to augment during the twenties in order to provide for higher replacement costs, was now the very cost they were trying to curtail, again because of the disparity between historical cost and replacement cost. A number of accountants argued that present operations should not be burdened with the higher cost incurred in a previous period. And likewise, some of them favored showing current asset values in the balance sheet in place of the obsolete historical costs.

As a result of this reasoning, or maybe because of the accounting doctrine of conservatism, many assets were written down

during the early years of the depression. For example in 1931 the net writedowns were about \$189 million, in 1932 about \$251 million, and in 1933 and 1934 about \$117 million each year.²⁹ In addition, the number of companies reporting writedowns increased from 15 in 1929 to 55 in 1932; this was followed by a drop to only 27 companies in 1934.

It is obvious, then, that the pleas of businessmen for permission to write down assets were heard, and evidently sanctioned, by the accountants during the early thirties. One author writing during this period pointed out that accountants should have no reservations about writing assets down, especially since they had allowed them to be written up only a few years earlier.³⁰

To determine more precisely how accountants felt about these writedowns, the National Association of Cost Accountants made a survey of its members, asking them if they favored writedowns, and if so, what basis they preferred to use for writing down assets.

The results of the survey revealed that of 117 replies, 32 opposed the asset writedowns, and 85 favored the policy; also, the method used in writing down assets favored by most accountants was

²⁹Committee on Accounting Procedure: American Institute of Accountants, Accounting Research Bulletin No. 5: Depreciation on Appreciation (New York: American Institute of Accountants, April, 1940), 45.

³⁰R. D. Haun, "Two Present-Day Problems of General Financial Accounting," The Accounting Review, VIII (June, 1933), 117.

the Net Sound Value basis.³¹ In short, it is apparent from the results of this survey that there were a great number of accountants in favor of writing down assets and in favor of using replacement cost as a basis for doing so.

However, there were some accountants who did not want to recognize replacement costs, even when there was a significant gap between replacement cost and historical cost. The Accounting Review editorialized in 1933 against the use of replacement cost. The editor said the cost of replacement had little significance because of the abnormal conditions existing during the depression; besides, he explained, the average complex plant will never be reproduced in the form in which it now exists. Hence, the editorial argued, it is best to stay with historical cost for the present.³²

Nevertheless, with the onset of increasing prices after the low point of the depression had passed, replacement cost again received favorable attention. An author writing in 1936 said that if higher replacement costs are not recognized, the excessive earnings based on historical cost figures may cause misconceptions to arise regarding the causes of such profits.³³ This is, indeed, a factor

³¹Research and Service Department: National Association of Cost Accountants, "Report on a Survey of the Revaluation of Plant Assets," N.A.C.A. Bulletin, XIV, Sec. I (March 15, 1933), 1039.

³²"Suggestions for Writedowns," The Accounting Review, VIII (March, 1933), 81.

³³Vernon A. Mund, "Financial Adjustment in Law of Cost," The American Economic Review, XXVI (March, 1936), 79.

worth considering; however, few authors explored its many ramifications at this time.

Public utility rates again. The public utility rate making problems were alleviated somewhat during the depression decade by the Supreme Court. In the Los Angeles Gas and Electric case³⁴ in 1933, and in the Pacific Gas and Electric case³⁵ in 1938, the Court accepted rate base valuations which used original cost instead of reproduction cost. Thus, the Court in these decisions indicated that historical cost could be used as a rate base for public utilities.

The rumblings of the second World War heralded the demise of the great depression in the United States: increased demand for wartime supplies provided a stimulus to the economy which enabled it to emerge from the depression decade to an era of booming economic activity.

Official Accounting Pronouncements

Accounting Research Bulletin No. 5. During this period of expansion, the American Institute of Certified Public Accountants (at that time called the American Institute of Accountants) issued, somewhat belatedly, a pronouncement dealing with the calculation of

³⁴Los Angeles Gas & Electric Corporation v. Railroad Commission of California, 289 U.S. 287.

³⁵Railroad Commission of California v. Pacific Gas & Electric Company, 302 U.S. 388.

depreciation on appreciated asset values.³⁶ The publication of this bulletin did not indicate an acceptance of replacement cost by this leading accounting body; instead, the bulletin instructed accountants to calculate the annual depreciation charge on the basis of historical cost. That is, only the historical cost of the asset could be charged against the revenue for each accounting period; and if added depreciation charges are made because of appraisal values above cost, the additional expense is charged to appraisal surplus.

Accounting Research Bulletin No. 33. A few years after the release of this bulletin on calculating depreciation charges, this same accounting organization attempted to solve the replacement cost problem by issuing another proclamation--Accounting Research Bulletin No. 33: Depreciation and High Costs. In this bulletin the Institute said it is the task of management to provide for the replacement of assets whose cost is higher than the historical cost by creating earned surplus reserves, not by increasing depreciation charges against revenue. Moreover, the Institute took a very strong stand against the recognition by any business of changes in price levels,

³⁶Committee on Accounting Procedure: American Institute of Accountants, Accounting Research Bulletin No. 5: Depreciation on Appreciation (New York: American Institute of Accountants, April, 1940).

at least ". . . until a stable price level would make it practicable for business as a whole to make the change at the same time."³⁷

Thus, the Institute spoke out strongly for the use of historical cost and at the same time allowed itself the option of using some other cost technique, such as replacement cost, if conditions ever require a different method.

Special study. In addition to its official Accounting Research Bulletins, the American Institute in 1947 also helped to sponsor a study of business income. From information gathered in this study, the Institute determined that certain benefits would come from preparing statements on the basis of a stable monetary unit; nevertheless, the report summarizing the outcome of this study concluded that historical cost is still the best way for continuing to prepare statements.³⁸

American Accounting Association Declaration. In contrast to these unprogressive proclamations of the American Institute is the vigorous statement issued by the American Accounting Association in 1951. This statement argued quite convincingly that statements

³⁷Committee on Accounting Procedure: American Institute of Accountants, Accounting Research Bulletin No. 33: Depreciation and High Costs (New York: American Institute of Accountants, December, 1947), 268.

³⁸v. W. Scully, "Problems Arising from the Decline in the Purchasing Power of the Dollar," Canadian Chartered Accountant, LXI (November, 1952), 182.

reflecting price level changes should be appended to these statements prepared on a purely historical cost basis; and, furthermore, that the time has come for these statements to be given a thorough test in practice.³⁹ Unfortunately, this suggestion for an immediate trial of current value statements was never implemented; however, this statement did provide the foundation for much fruitful debate.

Accounting Research Study No. 3. Another important accounting study which was published in the early 1960's offers, contrary to the other official accounting releases of the Institute, many strong arguments in favor of using replacement cost. Although this study does not have the binding force on accountants that the Accounting Research Bulletins have, it has stimulated a great deal of worthwhile discussion on the possibility of using replacement cost, particularly in the realm of inventory costs.⁴⁰

III. SOME OBSERVATIONS

Now that a sampling of episodes in the growth of the replacement cost concept has been observed, it is possible to make two general observations.

³⁹American Accounting Association, Accounting and Reporting Standards for Corporate Financial Statements and Preceding Statements and Supplements (1957 revision; Madison: American Accounting Association, 1957), 28.

⁴⁰Robert T. Sprouse, and Maurice Moonitz, A Tentative Set of Broad Accounting Principles for Business Enterprises (New York: American Institute of Certified Public Accountants, 1962), 22-36.

First, it seems that accountants in three of the countries discussed--Germany, France, and America--are willing to abandon historical cost whenever there is a violent change in the price level. This is verified by the rush to replacement cost by accountants in Germany and France during their confrontation with an extreme form of inflation; and, to a lesser extent, it is substantiated by the recurring praise replacement cost receives in this country whenever the cost to replace an asset is materially different from its historical cost.

However, this does not mean that all accountants welcomed the use of replacement cost with open arms. In England all the leading accounting organizations have, until recently, religiously adhered to the use of historical cost.

Second, the replacement cost concept has been in existence for a long time and should be carefully reviewed in order to determine whether it can be fruitfully applied to current problems.

To help in making such a review, several basic accounting ideas are presented in the next chapter of this study so that the underlying theoretical foundation of replacement cost can be subjected to careful scrutiny.

CHAPTER III

ACCOUNTING CONCEPTS RELEVANT TO REPLACEMENT COST

I. THE PERTINENT CONCEPTS

Having completed a review of replacement cost history, this study now probes some of the accounting concepts germane to the discussion of replacement cost. In this chapter a concise analysis of the relevant concepts--cost, objectivity, depreciation, matching, profit, going concern, balance sheet, conservatism, and materiality--is provided in order to provide a conceptual framework that can be used to analyze rigorously the replacement cost concept in one of the following sections of this study.

Cost

A rule that has been revered by accountants ever since the early days of bookkeeping is that all assets should be recorded in the records at their cost--that is, the amount of cash outlay necessary to acquire the inventory, the land, or the equipment.¹ In following this rule, accountants are relying on both tradition and, even more important, on a group of logical assumptions.

For example, the accountant is concerned with measuring both the increases and decreases in the equity of the business as well as

¹Rufus Wixon (ed.), Accountants Handbook (fourth edition; New York: Ronald Press Company, 1957), 1-16.

the form which these increases or diminutions take; therefore, it is necessary for him to use some technique for measuring the changes in the value of the business. Normally he uses purchase price to measure the value of assets purchased; the purchase price, or acquisition cost, measures the value of the object bought because at the time that the transaction takes place these two (cost and value) generally are synonymous.

Moreover, the outlay cost provides the accountant with a definitely determinable event that can be posted to his accounts. Hence, the cost of purchasing the asset not only measures the value of the service or asset acquired, but it also provides the accountant with a concrete recordable event.

Value or cost. If outlay cost measures value, one may ask why accountants occasionally use market value on the balance sheet. Why do they abandon historical cost?

The answer is quite simple: value and cost are generally identical on the date of acquisition, but at a later date they may be completely different.² Accordingly, accountants often display inventory on the balance sheet at a figure lower than its cost; and, for the same reason, marketable securities may be placed on the balance sheet at their present selling price.

²James L. Dohr, "Cost and Value," The Journal of Accountancy, LXXVII (March, 1944), 194.

Although this may be true, it is argued by some accountants that value is much too subjective ever to appear on the balance sheet, but on the other hand cost is an established fact.³ Furthermore, these accountants contend, the value (market value) of any asset is constantly changing; in fact, the value placed on the balance sheet today not only may be different tomorrow, it also may have been different yesterday. Thus, it is concluded that cost, even though not reflecting the current value of an asset, should be used because the present day value is in a constant state of flux.

Still another defense of cost notes that historical costs are easier to work with than a more current value. For instance, it is much less exacting for an auditor to verify the plant account balance when historical cost instead of some up-to-date value is used: to verify the historical cost balance, the auditor has only to examine invoices and vouchers that support the entries to the account; whereas the determination of current value would force the auditor not only to seek advice from appraisers, but also to peruse recent price quotations for the latest prices.⁴

In summary, cost may be described as the sacrifice made by a business enterprise to acquire some asset or service; the amount of the sacrifice is measured by the purchase price of the object bought.

³A. C. Littleton, "Value and Price in Accounting," The Accounting Review, IV (September, 1929), 150.

⁴A. C. Littleton, "Value or Cost," The Accounting Review, X (September, 1935), 272.

Additionally, the cost and value of the item purchased are the same when the asset or service is originally obtained; but because they are usually dissimilar at a later date, accountants frequently show current market values on the balance sheet.

Objectivity

Some of the reasoning advanced in support of using cost rather than value underscores the certitude of cost as opposed to the relative uncertainty of value. The supporters of historical cost emphasize that the element making cost more certain as a measure of value is its "objectivity."

This term, as used here, refers to the expression of facts without any distorting influence from personal bias. This is in opposition to subjectivity which implies that personal opinion plays a major role in the decision.⁵ More specifically, an accounting transaction provides objective evidence because the accountant who records the sale or purchase does not use his personal judgment to determine the quantity entered in his ledger: he uses the document supporting the transaction as a basis for the total recorded in the financial records.

Likewise, the terms and the dollar amount of the transaction are generally established by negotiations which are evidenced by an invoice, a check, or similar supporting records. These documents,

⁵W. A. Paton, and A. C. Littleton, An Introduction to Corporate Accounting Standards (Ann Arbor: American Accounting Association, 1960), 19.

along with market data, also provide information that makes the transaction an objective and unambiguous event.⁶

Flexibility. Although useful and practical, the concept of objectivity cannot be applied inflexibly to every decision an accountant must make; on the contrary, it must be judicially tailored to each new situation. For instance, the actual cost of an asset acquired in a trade cannot be ascertained as conclusively as the cost of an asset purchased for cash, nor can the accountant rely on "completely" objective evidence to provide the proper procedure for determining cost of goods sold.

In the realm of depreciation accounting the practitioner removes himself even further from the restraints imposed by objective evidence. He can use any one of a number of methods for calculating depreciation--some of them may cause depreciation expense to be very high the first few years an asset is operated, others may cause depreciation expense to fluctuate with the utilization of the asset, and still another may cause depreciation expense to be relatively stable throughout the useful life of the asset. Regardless of the depreciation procedure he chooses, the accountant will find little objective evidence to substantiate his choice of method.

⁶American Accounting Association, Accounting and Reporting Standards for Corporate Financial Statements and Preceding Statements and Supplements (1957 revision; Madison: American Accounting Association, 1957), 3.

Furthermore, other considerations (such as conservatism and the proper matching of revenue and expense) sometimes take precedence over the strict reliance on objective evidence, and it becomes necessary to take a more adaptable approach to the use of objectivity. As one author has put it, any data which are considered useful to accountants are considered objective if they are substantiated or are capable of being substantiated by an independent party.⁷ The form of these data may vary from canceled checks and suppliers' invoices to estimates based on statistical techniques and mathematical formulas.

Objectivity, then, usually means the absence of personal judgment; however, the stress of applying accounting standards to a dynamic business environment may compel the accountant to allow, perhaps reluctantly at times, a modicum of subjective judgment to creep into his objective evidence.

Depreciation

Although depreciation has already been mentioned in the discussion of objectivity, no effort was made to give a definition or description of the term. Consequently, this section presents a short review of some important aspects of depreciation, such as its nature and its purpose.

⁷Harold E. Arnett, "What Does Objectivity Mean to Accountants?" The Journal of Accountancy, CXI (May, 1961), 68.

Nature of Depreciation. In essence, depreciation is a process of distributing the cost of an asset over its estimated useful life; it is a process of allocation, not of valuation.⁸ This explanation is contrary--and rightly so--to the widely held notion that depreciation measures only the physical deterioration of an asset.

In addition to considering the physical decline of the asset, the accountant also considers another important factor; namely, the economic force of obsolescence. This ingredient may cause an asset to reach the limit of its usefulness to the firm before any serious physical wear has occurred. If under these circumstances an accountant were to calculate depreciation on the basis of physical usage, he would find that operations were not being charged with the full cost of using this particular asset; and, as a result, annual net income would be overstated until the year in which the asset was scrapped.

Added emphasis is given to this distinction between physical wear and cost allocation by the accounting practice of consistently applying depreciation to the investment in the asset rather than to the asset itself.⁹ Such emphasis highlights dramatically the divergence between the allocation of cost and the mechanical deterioration of the asset.

⁸Committee on Terminology, American Institute of Certified Public Accountants, Accounting Terminology Bulletins: Review and Resume (New York: American Institute of Certified Public Accountants, 1953), 25.

⁹H. A. Finney, and Herbert E. Miller, Principles of Accounting: Intermediate (fifth edition; Englewood Cliffs: Prentice-Hall, Inc., 1960), 355.

Source of funds. Another misconception held by many investors, and even some accountants, is that the accumulated depreciation account is some sort of fund that will be used to replace the asset when it is fully depreciated.¹⁰ Obviously, this interpretation of the accumulated depreciation is incorrect and misleading. Indeed, as one author has said, depreciation provides nothing; it is only a method of systematically accruing one of the costs of production.¹¹ Hence the depreciation charge itself is totally divorced from the accumulation of funds for the eventual replacement of an asset.

Actual depreciation cost. If depreciation is completely unrelated to the replacement of an asset, those uninitiated in the mysteries of accounting may plausibly ask why the use of replacement cost is sometimes offered as a method of calculating depreciation. In order to answer this question it is necessary to look at the nature of the depreciation charge itself.

As already stated, depreciation is an allocation of cost. But when the price level has changed or when the cost of a particular asset has changed substantially, many accountants question the exclusive use of historical cost as a basis for calculating the depreciation charge. They maintain that other costs, such as salaries and wages, are reported at the current price level or the

¹⁰Paton, and Littleton, op. cit., 88.

¹¹W. A. Paton, "What Is Actual Cost in Depreciation Accounting?" The Journal of Accountancy, XXCV (March, 1948), 6.

present market price; but depreciation is based on a cost incurred in some past year when costs were not comparable to the present day costs.

Therefore, these accountants argue, it is necessary to calculate the depreciation charge on some current cost basis in order to present a depreciation expense that is comparable to the other expenses reported in the income statement.¹² A procedure that will provide such an up-to-date charge is one that uses replacement cost instead of historical cost in the computation of the annual depreciation expense. It is in this context of current cost versus outdated historical cost that replacement cost is used in discussions of depreciation, not in relation to the replacement of the physical asset itself.

Moreover, one author reasons, those who support replacement cost depreciation are probably defending the use of actual cost in depreciation calculations more effectively than those who insist on using actual (historical) cost.¹³ Or, in other words, actual cost is a current cost and not a cost that is several years or maybe even several decades old.

¹²Ibid.

¹³Ibid., 207.

Matching

Whether these accountants are defending actual cost effectively or not, they are involved in an argument that touches upon another underlying concept used in accounting--the process of matching.

This process is concerned with reporting all the expenses incurred in a particular period that apply to the revenue earned in the same period.¹⁴ For example, all salary expense for the month of June is applied to the revenue earned in June, all rent expense for June is charged against the June revenue, and the depreciation expense for June is deducted from the June revenue in arriving at net income for the month.

It is relatively easy to assign costs such as salary and rent to a particular accounting period; however, depreciation expense and certain other expenses, like amortization of goodwill, for example, are not so definitely related to the revenue for a specific accounting period. Indeed, the amount of these costs for each period is dependent upon the judgment and interpretation of the accountant, rather than upon a definitely determinable amount of outlay per period.¹⁵

Another aspect of the matching process relates to inventory costs. All of the costs assignable to the inventory produced by a

¹⁴Wilbert E. Karrenbrock, and Harry Simons, Intermediate Accounting (third edition; Chicago: South-Western Publishing Company, 1958), 6.

¹⁵Paton, and Littleton, op. cit., 69.

firm are collected and attached together so that a bundle of costs is associated with every unit of inventory produced. These cost bundles are matched with the revenue derived from the sale of each unit produced; but until the inventory is sold, they are held in abeyance as costs awaiting discharge against revenue.

In brief, the matching process attempts to measure the accomplishment of the business--net income--by correctly comparing the revenue earned with the costs incurred in producing this revenue. These costs matched with the revenue are usually historical costs; however, in some instances they may be historical cost adjusted by a price index, or they may even be replacement cost.

Profit

Regardless of the cost method used, the net result of the matching process is a figure called net income or profit. According to some accountants, this residual figure is calculated by deducting all expenses from the total receipts; and according to other accountants, it is derived by calculating the difference between revenue and expense after allowances are made for the preservation of the present capital of the business; and still others (mainly economists) maintain that profit is measured by taking the difference between the value of the assets possessed at the beginning of the period and those owned at the end of the period, of course after making allowance for additional investment and dividend payments.

Difference between receipts and expenditures. Support for the position that profit is merely the difference between revenue and

expense is provided by the American Institute of Certified Public Accountants in one of its bulletins. However, this pronouncement does not include all forms of gain in measuring revenue; it stresses that the revenue taken into account must be realized--that is, no unrealized gains can be included in the total revenue figure used to calculate profit.¹⁶ As a result, revenue is recognized only when cash or an asset readily convertible into cash is received or when the business receives a claim to cash. Expenses, of course, are recognized when they are incurred.

Although subject to many possible objections, such as the absence of price level considerations or changes in the value of assets, this method does have one very strong point in its favor--its simplicity. It is relatively easy to calculate net income where total revenue is obtained by totaling the amount of sales: no consideration of purely subjective appraisals is necessary, no complex index number adjustments need be made, and the accountant does not have to ascertain the replacement values for the various assets owned by the business. Hence, it is not difficult to understand the wide acceptance of this profit concept (realized revenue minus incurred cost) by practicing accountants.

But is the accountant supposed to account only for dollars, or is he supposed to recognize other influential factors bearing on the

¹⁶Committee on Accounting Procedure, American Institute of Accountants, Accounting Research Bulletin No. 9: Report of Committee on Terminology (New York: American Institute of Accountants, May, 1941), 72.

calculation of net income? Some authors maintain that the accountant cannot account for dollars alone; they say that he must also account for the capital of the firm, i.e., net income must be computed in such a manner that the capital of the business is maintained.

Maintenance of capital. Those individuals following this line of reasoning argue that no profit can be reported unless adequate provision is made for the preservation of the existing capital. That is, during a period of rising prices the depreciation charge would be increased or a special charge would be made against revenue in order to prevent the business from paying dividends out of capital--a common occurrence where price increases cause a business to report fictitious profits.

To put it another way, true net income is determined only after enough assets have been accumulated from profitable operations to replace the assets consumed in the year's production.¹⁷ If this argument is extended further and applied to merchandise inventory, it will require a business to determine selling prices on the basis of replacement cost in order that the firm may replace the goods sold without consuming the profit earned from their sale.

Although the preservation of capital may cause a more significant net income figure to appear on the income statement, some

¹⁷Fritz Schmidt, "The Basis of Depreciation Charges," Harvard Business Review, VIII (April, 1930), 264.

writers prefer a more ideal definition of income that includes all increases in wealth.

Increase in wealth. If the value of assets owned by a business at the beginning of a period is subtracted from the value of assets held at the end of the period, due allowance naturally being made for added investment and dividend distributions, the net increase represents the income for the period of time under consideration.¹⁸ One author has suggested that accountants calculate income in this manner; and, moreover, he accuses accountants of compiling false information by recognizing only realized income as revenue.¹⁹ This allegation may, indeed, have some merit if the purpose of the accountant is to record all income as defined by this author--all increments in asset values, realized or unrealized.

However, if both realized and unrealized gains are recognized in calculating net income, the accountant is faced with a perplexing problem: how to determine the beginning and ending asset values. Should he use appraisals, current market values (if available), index number adjustments, or the cost to have the asset reproduced? Each method may give a different asset value, and yet the accountant must choose the best one. Consequently, because of these practical considerations, practicing accountants avoid this profit concept.

¹⁸Willard J. Graham, "Defining Income," The Journal of Accountancy, CX (August, 1960), 30.

¹⁹Henry W. Sweeny, "Income," The Accounting Review, VIII (December, 1933), 335.

Going Concern

Another basic concept that accountants rely upon when preparing statements is the going concern concept. This concept is based on the premise that the business enterprise will continue operating indefinitely, even though it is recognized that business conditions and economic activity are continually changing. The present environmental conditions are assumed to continue far enough into the future that existing plans and programs can be carried to completion; that is, assets will continue to be useful for the purpose for which they were acquired, and liabilities will be paid when they mature.²⁰

Businesses do fail. This assumption is assailed by some writers because a large number of businesses do not continue operating indefinitely, but fail after a short period of operation. True enough; however, a business venture is not initially undertaken with the expectation of failure uppermost in the mind of the entrepreneur. He expects the business to continue in existence: he normally expects continuity and not liquidation.²¹

Because accountants recognize that continuity is the normal expectation of businessmen and stockholders, their record keeping and reporting of financial information are based on this premise. In fact, this assumption exerts a great influence on the manner in which accountants report asset values in the financial statements.

²⁰American Accounting Association, op. cit., 2.

²¹Paton, and Littleton, op. cit., 9.

Influence on the balance sheet. By relying on the firm's continuity of existence, accountants are able to support their presentation of historical costs instead of realizable values in the balance sheet.²² In this case the realizable values are irrelevant because there is no intention of selling the assets; and, moreover, the assets have a value that is attributable to them because of their use in the particular business. Also, the realizable values of the individual assets fluctuate from one statement date to the next because of changes in the demand for these assets; but their going concern values change only as the company becomes more profitable or less profitable.

Basically, then, the going concern concept assumes indefinite continuity of operations for a specific business; and, equally important, it precludes the inclusion of current market values on the statements because these values are based on a quitting concern concept.

Balance Sheet

The balance sheet, although relying on the going concern idea for much of its rationale, is a concept that deserves consideration by itself. It is a statement of compromises and inconsistencies: compromises, because neither a purely cost balance sheet nor a purely appraisal balance sheet is acceptable; and inconsistencies, because

²²Karrenbrock, and Simons, op. cit., 47.

market values are used for some assets (inventories and temporary investments whose market value is less than their cost) whereas cost is strictly adhered to for other assets--particularly fixed assets. Consequently, it is not easy to present a precise and clear-cut definition of a balance sheet; only broad generalizations can be made.

Definition. The American Institute of Certified Public Accountants describes the balance sheet as merely a statement of balances carried forward after the books of a business are closed.²³ This explanation of the balance sheet gives it a narrow, technical meaning devoid of much of the meaning attributed to it by some statement readers. For example, some statement readers think that the balance sheet presents the current financial position of the business, others think the asset values are current market values, and some readers even visualize the dollar amounts shown for the assets as huge stockpiles of cash.²⁴

Obviously, these ideas are false, and the definition given by the American Institute of Certified Public Accountants does not include any of these meanings. But, is the balance sheet merely a collection of meaningless historical costs taken from the accounts and reassembled on a piece of paper?

²³Committee on Terminology, American Institute of Certified Public Accountants, op. cit., 12.

²⁴William H. Whitney, "What Is a Balance Sheet?" The Journal of Accountancy, LXX (October, 1940), 308.

Of course not. The balance sheet presents much more information than this: it shows on a particular date a significant factor that relates to the financial position of the business, i.e., the cumulative result of the transactions of the firm from its inception to the present date; and it describes the composition of the pool of assets that is available for the business to use in its operations--the amount and kinds of fixed assets and current assets. This inclusion of current assets and fixed assets raises the problem of the valuation of these assets.

Historical cost or market value. One author has said that it does not make sense to use several different values on the balance sheet; that is, all assets should be recorded at the outlay cost, at appraisal values, or at replacement cost.²⁵ Because cost is the only basis considered reliable by this writer, he suggests that only cost values should appear on the balance sheet.

Another somewhat less dogmatic view is presented by an accountant who realizes that for balance sheet purposes assets can be divided into two groups: current assets, and long-term assets. For the first group, the present cash value is the logical basis of valuation; and for the second group, going concern (historical cost) is the logical criterion for valuation.²⁶ This view seems to be in

²⁵George O. May, "The Influence of Accounting on the Development of an Economy," The Journal of Accountancy, XI (January, 1936), 15.

²⁶Mortimer B. Daniels, "Principles of Asset Valuation," The Accounting Review, IX (June, 1934), 120.

line with the current practice followed by accountants in their valuation of current and fixed assets, of course, within the range of flexibility allowed by the doctrine of conservatism.

The use of values other than historical cost in the balance sheet is objected to by a number of accountants because of the subjectivity involved in such a departure from cost. However, according to an author writing in the Canadian Chartered Accountant, even a strict reliance on the use of historical cost is not devoid of subjective elements. The treatment of inventory valuation, of depreciation, of allowances for bad debts, and so forth, is a matter of judgment. As a result, the final balance sheet prepared by the accountant is only a close approximation of a financial situation that existed at some previous moment of time.²⁷

In short, it seems that the balance sheet is a statement that lists the assets, liabilities, and owners' equity of a business at a particular point in time. Also, the assets shown there are generally reported at their historical cost, except for some of the current assets which may be stated at current market value—provided that this market value is lower than the cost of the asset.

Conservatism

In the preceding discussion it was mentioned that market value may be used on the balance sheet for certain assets when their current

²⁷Courtland Elliot, "Limitations and Uses of Published Financial Statements," Canadian Chartered Accountant, LV (November, 1949), 211.

value is lower than their cost. In other words, market value can sometimes be used in the preparation of the accounting statements. But when can it be utilized, and what kind of reasoning do accountants use to justify their departure from the sacrosanct principle of reporting only historical cost? Very simply, they rely on the doctrine of conservatism to justify discreet departures from cost at certain strategic times.

Definition. This doctrine, which may be described as the admonition to recognize all losses and to anticipate no gains, is used to justify the writedown of assets from their cost values.²⁸ It originated during the period when balance sheets were the primary statements issued for the benefit of creditors and owners. Naturally the creditors were more interested in the debt-paying ability of the business than in its earning power; so the accountants prepared statements that included all foreseeable losses and no possible gains, thereby providing a balance sheet which indicated the solvency of the business if all immediate losses were suddenly realized.

Inconsistency of the doctrine. With the advent of the income statement as the most important indicator of business activity, the doctrine of conservatism has received some pointed criticism. It has been attacked for the inherent inconsistency present in recognizing a

²⁸Karrenbrock, and Simons, op. cit., 48.

decline in the market value of an asset and ignoring an increase in the market value of the same asset.²⁹ Further, an application of conservatism to the balance sheet may result in a contrary effect on the income statement: reducing income now through an asset writedown will result in smaller charges against revenue in future periods with a consequent overstatement of the net income in these same periods--an overstatement that is definitely not conservative from the income statement viewpoint.

Schmalenbach's chance-risk assumption. Although conservatism has been attacked for its seeming inconsistency, one author has argued that such apparent inconsistency is the element that makes conservatism a consistent doctrine. He bases his discussion on Schmalenbach's chance-risk assumption. Simply stated, this assumption says that the chance of making a gain or profit has less influence on an individual than the risk of incurring a loss.³⁰

Thus, for example, the argument that increases in the market value of inventory should be recognized in the same manner that decreases are noted is irrelevant--the decline in market value has a greater influence on the statement reader than the increase in value has. Therefore, it is argued that because the increase has a lesser influence on a statement reader than a decline has, it should not

²⁹Carl T. Devine, "The Rule of Conservatism Reexamined," Journal of Accounting Research, I (Autumn, 1963), 132.

³⁰Ibid.

receive the same treatment given to a decline in market value; and the concept of conservatism is not inconsistent.

Basically, the doctrine of conservatism is concerned with anticipating the worst or, to state it another way, it is concerned with reporting favorable conditions with some reluctance and reporting unfavorable conditions immediately and emphatically.³¹

Materiality

Another useful notion used by accountants in their day-to-day work is the concept of materiality. This concept requires the accountant to consider only significant items when he is preparing financial statements. Thus the accountant is freed from the obligation of providing statements that are correct in every detail; he need only assure himself that all significant items are presented correctly.

Usefulness. It is possible, for example, for the accountant who is preparing a balance sheet to ignore a small decline in the market value of inventory on the grounds that the reduction in value is too small to report--it is immaterial. Hence the accountant is able to direct his attention to the more significant occurrences affecting the financial position of the business; such as, large inventory declines, major nonrecurring expenses, and material misstatements of depreciation charges.

³¹Ibid., 128.

Although the use of materiality makes it much easier for the accountant to prepare statements by drawing his attention to the important items, it is not an easy concept to describe. The American Accounting Association simply describes it as a state of relative importance.³² A Dictionary for Accountants also stresses the fact that materiality depends on the relative importance of the item being considered.³³ In fact, every author who writes on the subject emphasizes that materiality decisions must be made in light of the relation between the charge or credit being considered and some other total or account balance.

More simply stated, materiality is a useful tool that allows the practicing accountant to free himself from the burdensome job of examining trivial details in order that he may devote his energies to the more important amounts.

II. SUMMARY

This review of particular accounting concepts, although neither comprehensive in scope nor exhaustive in depth, will provide the conceptual frame of reference necessary for a later chapter. However, before this chapter can be undertaken, it is necessary to examine the nature of the replacement cost concept.

³²American Accounting Association, op. cit., 49.

³³Eric L. Kohler (ed.), A Dictionary for Accountants (second edition; Englewood Cliffs: Prentice-Hall, Inc., 1957), 308.

Such a task is not without difficulty, for many writers have differing, and sometimes conflicting, opinions on the exact nature of replacement cost. Therefore it is necessary to review the numerous, varying meanings attributed to the term by these authors. This review is undertaken in the next chapter.

CHAPTER IV

SOME DEFINITIONS OF REPLACEMENT COST

Throughout the preceding pages of this study the term "replacement cost" appeared persistently; sometimes its meaning was closely associated with price level adjustments, sometimes with reproduction cost, and at other times with current transaction value. No doubt this differing and occasionally contradictory usage of the term has caused some confusion in the mind of the reader.

In order to dispel some of this disorder and to explore the genuine nature of replacement cost, an examination of the various explanations of this concept is made in the following pages. This investigation into the true nature of replacement cost proceeds from an analysis of the various meanings attributed to the term by the numerous writers discussing the subject.

Even a cursory examination of the material available on replacement cost will reveal that most, if not almost all, authors mentioning replacement cost fail to set forth a clear, precise definition of the term. They discuss replacement cost as if its meaning were widely known and generally accepted among accountants. This casual omission of an accurate definition is at the heart of much of the debate about replacement cost.

I. EXPLANATION USING PRICE LEVEL INDICES

General Price Index

Although in none of the material surveyed for this study was replacement cost associated with the use of a general price level index, it seems wise to explore the possible strengths and weaknesses of using such an index as a procedure for arriving at replacement cost. In this way, all possible meanings of replacement cost will be reviewed and evaluated in this study.

Description. A general price index would be used to derive replacement cost by adjusting the original cost of an asset for changes in the general level of prices, both increases and decreases. The index, applied to fixed assets, would adjust the historical cost of the asset by converting old dollars to current dollars.

For example, a building purchased for \$10,000 in 1948 when the Consumer Price Index (a general index) was 100 is placed on the balance sheet at a value of \$11,410 in 1952 when the index is 114.1. In addition, the depreciation charge for 1952 is calculated on this adjusted value so that a current depreciation expense, comparable to the other expenses on the income statement, appears as a deduction from revenue in the statement of income.

Strengths. One of the major advantages that could be secured from such an adjustment is the display of an asset value for each asset that is comparable to that of every other asset: Accounts Receivable is stated in the same dollars as Land, Inventory value is

comparable to the value of the Building, and Equipment value may be compared to the Cash value. Equally important, the purchasing power of the aggregate capital is maintained; that is, rising prices do not produce fictitious profits that act as a catalyst for dividend distributions, distributions which may reduce the total capital of the firm.¹

Weaknesses. Although it provides asset values that are comparable and although it helps preserve the purchasing power of the aggregate capital of the business, the use of a general price index is not very useful in arriving at a definition of replacement cost. A general index is an average of a large number of prices--groceries, automobiles, clothing, tires, and many more items. The cost of groceries may be declining while the price of automobiles is rising, and, simultaneously, the selling price of tires may be fluctuating violently; but, during this same period, the general price index may be steadily creeping upward. Consequently, the price of any particular commodity may be falling while the general price level is rising, or vice versa.²

More specifically, the general price level has been inexorably climbing upward since the end of World War II, but the cost of hula-hoops began falling after the peak in the hula-hoop craze was

¹Perry Mason, Price-Level Changes and Financial Statements (Columbus, Ohio: American Accounting Association, 1956), 13.

²Donald Corbin, "The Impact of Changing Prices on a Department Store," The Journal of Accountancy, XCVII (April, 1954), 437.

reached. A replacement cost for the plastic hoops derived by using the Consumer Price Index would have provided very misleading answers. In fact, a replacement cost calculated in this manner would have probably resulted in a replacement cost well above the retail selling price for the hoop.

Basically, then, the use of a general price index, although providing statements in terms of stable dollars (i.e., dollars of the same purchasing power), cannot provide a reasonable procedure for calculating replacement cost. Therefore, it cannot be used to describe adequately the concept of replacement cost; and it is necessary to look elsewhere for an explanation of the replacement cost concept.

Specific Price Index

Another idea worth examining for possible insights into the nature of replacement cost is the practice of using specific price indices--construction cost indices, wholesale price indices, indices of steel costs, and so forth--as a means of deriving replacement cost. Such a procedure avoids the primary objection to the use of a general price index; namely, the wide fluctuations of prices of the various commodities used in computing the index.

Explanation. When using this method of ascertaining replacement cost, the accountant applies a specific index number adjustment

to the historical cost value of each asset.³ For instance, the machine tools revaluation is determined on the basis of market prices, or if the company manufactures its own tools, current production costs are used; for buildings, replacement cost is developed from an index for that particular type of building; and where assets cannot be classified into groups, an index may be compiled and applied to each item.⁴ Thus, every asset is adjusted only for the price fluctuation affecting that particular asset and not for those variations that relate to any other asset.

Advantages. As a result, the factors affecting the cost of the asset--price level changes and changes in demand for the asset--are reflected in the values placed on the financial statements. This prevents net income from being overstated in periods of rising prices; and conversely, it prevents income from being understated in times of falling prices. Therefore, the capital invested by the owners is preserved from dilution or augmentation without a clear statement of this change appearing in the balance sheet.

Disadvantages. Up to this point, it has been assumed that a sufficient number of indices are available to permit adjustment of any asset account; however, this is not the case, for only a limited number of published indices are available to businessmen.

³J. L. Davis, "Depreciation on Replacement Cost," The Controller, XXI (May, 1953), 228.

⁴A. Goudekot, "An Application of Replacement Value Theory," The Journal of Accountancy, CX (July, 1960), 38.

Consequently, each business, if it wants to apply a different specific index to each of its numerous assets, is forced to prepare its own measures of price changes.⁵ Obviously, this situation is unacceptable to most accountants because of the lack of objectivity in the index calculation and because of an absence of comparability from company to company.

In fact, public accountants, if they accepted the use of specific indices in the calculation of replacement cost, would probably require the use of government prepared indices. However, a specific index even if prepared by the government may not be ideally suited for use in computing replacement cost.

For example, the various costs of constructing a building as well as production methods have varied during the past generation. Forty years ago the excavation for a foundation was commonly dug with mules and scrapers, and picks and shovels completed the job. Now, however, a mechanized shovel can do the same job in a very short length of time. Yet the index for building construction costs reflects only the change in the cost of erecting the building; changes in construction methods, regardless of their importance, are not considered.⁶

⁵Ibid., 40.

⁶Ralph L. Berry, "What Is Needed to Establish Reproduction Cost Now?" N.A.C.A. Bulletin, XXXVI, Sec. I (September, 1954), 16.

Or, look at the production of milling machines; their cost has risen rapidly over the past few years, but revolutionary changes in design and the introduction of new models have altered their production capabilities enormously.⁷ However, a published index for milling machines would consider nothing more than the changing prices of the machines--potential increases in productivity are ignored.

Moreover, one may object to the use of a specific index because it corrects for changes in the general price level as well as for price fluctuations caused by variations in the demand for the asset, i.e., for price changes that reflect a change in money value, and those that reflect a change in real value.⁸ Thus it may be noted that there is some lack of clarity when a specific index is used to establish replacement cost.

To summarize, it seems that the use of specific index numbers does provide a replacement cost value that can be used in the accounting statements; however, the use of such an index contains the weaknesses generally associated with the use of an index adjustment--the disregard for changes in production methods and the changes in machine capacity.

⁷Ibid., 40.

⁸Willard J. Graham, "Defining Income," The Journal of Accountancy, CX (August, 1960), 28.

In this discussion of price level changes and their relation to replacement cost, however, no attempt was made to explore the subject of price level adjustments in depth; only those aspects of index adjustments that relate to replacement cost were considered. Although this limited review exposed certain merits of price level adjustments that may be useful in computing replacement cost, it is necessary to search further for a clear explanation of replacement cost.

II. EXPLANATION USING COST TO REPRODUCE

The words, replacement cost, seem to suggest that they refer to the replacement, either presently or later, of an asset; and as might be expected, many accountants use replacement cost in this manner. Accordingly, a survey of the many shades of meaning attributed to the term within the realm of asset replacement seems fruitful.

Cost of an Exact Duplicate

Definition. A number of accountants argue that replacement cost is the cost either to buy or to produce an exact duplicate of an existing asset. For instance, the cost to buy an exact replica of the truck used in delivering merchandise is the replacement cost of the truck; the cost to build a building like the present factory is the replacement cost of the factory; and the cost to refill the present stock of inventory is considered the replacement cost of the

inventory. One author has stated that the use of lifo in calculating the cost of sales, which would approximate the cost to restock the goods sold, is actually a use of replacement cost that is condoned by accountants.⁹

This contention is given some support by the proclamation issued by the American Institute of Certified Public Accountants when it first approved the use of lifo by the oil industry. The special committee of the Institute said that the effective profit margin means the spread between current sales price and reproductive, or replacement, cost of the raw material.¹⁰

Favorable features. Whether lifo is an application of replacement cost or not, it is easy to understand why the cost of getting an exact duplicate of an asset presently owned is so widely used as an explanation of replacement cost--it is easy to understand. Even an individual who is completely ignorant of all accounting concepts and operations can understand that the cost of getting another automobile like the one on the display floor is the replacement cost of that car. It is not necessary to explain the theoretical arguments in favor of replacement cost; the individual can intuitively understand what the term means.

⁹John W. Coughlan, "The Guises of Replacement Cost," The Accounting Review, XXXII (July, 1957), 439.

¹⁰American Institute of Accountants Special Committee on Inventories, "Valuation of Inventories," The Journal of Accountancy, LXII (August, 1936), 125.

Furthermore, getting the cost of a duplicate asset may be quite easy: the cost of replacing an item now carried in inventory can be learned by reading a price list, or by picking up the telephone; the cost of replacing a fixed asset may require a phone call to the manufacturer so he can quote the cost of furnishing the asset.¹¹ Either way, the determination of the cost to replace the asset is not too difficult to understand or to accomplish.

Drawbacks. However, the cost of replacing an asset may not always provide meaningful information. More specifically, a railroad that owns several steam locomotives now that diesel engines are widely accepted is not interested in the replacement cost of the steam driven machines. Such a cost is probably much higher than the cost of a diesel, and, besides, the productive value of the steam engine is probably a small fraction of its replacement value.

On the other hand, more useful information is provided by the cost of replacing units in inventory with exact duplicates because there usually is no wide cost disparity between the inventory on hand and the goods bought to replace the present stock; but fixed assets may be so obsolete at times that their replacement value is senseless in the light of present conditions.

Aside from the fact that an asset is obsolete, it may be impossible to get an exact reproduction. For example, consider a

¹¹"Official Decisions and Releases: The Accounting Implications of Changing Money Values," The Journal of Accountancy, XCVII (February, 1954), 253.

company that owns an old truck which cannot be reproduced by a manufacturer except at a prohibitive price. Here again, the replacement cost secured by finding the cost of a duplicate asset produces absurd results.

In short, the explanation of replacement cost which states that this cost is the price of an exact replica of the asset is easy to understand, and, in some cases, it is easy to derive; however, there is a serious drawback to using the cost of an exact replacement as the replacement cost of the asset--namely, the difficulty of determining a meaningful value for certain assets. Furthermore, it is impossible to determine a cost to replace some assets, such as outdated machines, which are no longer produced.

Reproduction Cost

Nature of reproduction cost. There is only a shade of difference between reproduction cost and the cost of producing an exact copy of a particular asset. As one author has put it, reproduction cost is the cost of replacing an asset with a like asset.¹² And another explanation says that reproduction cost is the cost to reproduce the asset new.¹³ It is important to note that both of these descriptions do not stress that the cost of an exact duplicate must

¹²James C. Bonbright, Principles of Public Utility Rates (New York: Columbia University Press, 1961), 224.

¹³Wilbert E. Karrenbrock, and Harry Simons, Intermediate Accounting (third edition; Chicago: South-Western Publishing Company, 1958), 521.

be secured; rather, they imply that the cost of a similar asset can be used as the reproduction cost.

The close relationship existing between reproduction cost and replacement cost is emphasized by the manner in which appraisers use these terms. To them the words are synonymous: there is no difference between replacement cost and reproduction cost.¹⁴

Strengths. As compared to the use of a perfect copy of an asset to get its replacement cost, reproduction cost offers the feature of flexibility; that is, the cost of a similar asset may be used instead of the cost of an asset exactly like the one presently owned.

Reproduction cost permits the cost of a 1964 model truck to be used in getting the reproduction cost of the 1963 truck presently owned by the business. This is true even though the new truck is green and the old one is black; and even though the new truck uses a different size tire from the old one and comes equipped with electric windshield wipers whereas the wipers on the old truck are operated by a vacuum motor. In spite of these minor differences, the cost of the 1964 model can be used to determine the reproduction cost of the 1963 model.

Weaknesses. Although more flexible than the concept of replacement cost that relies on an exact duplicate of the asset,

¹⁴Henry W. Sweeney, "Approximation of Appraisal Values by Index Numbers," The Harvard Business Review, XIII (October, 1934), 113.

reproduction cost is not broad enough in scope to be used as a general explanation of replacement cost. For instance, how is reproduction cost determined when the asset in question is no longer produced because it is obsolete? In addition, reproduction cost usually pertains to the cost to reproduce an asset; as a result, its usage is usually restricted to discussions of long-term assets.

Thus reproduction cost, although offering a degree of flexibility in the determination of replacement cost, cannot provide the comprehensive explanation of replacement cost that is needed for an analysis of the replacement cost concept.

Cost of Replacing an Asset on a Future Date

Description. The reproduction cost of an asset is flexible to apply, and replacement cost is used in this manner by many accountants; however, the cost to replace the asset when it wears out is another popular way of explaining replacement cost. This explanation is particularly used by many accountants who oppose the use of replacement cost in calculating depreciation.

Very simply, this concept of replacement cost states that the cost to restock the asset at some future date, a date generally unknown, is the proper cost to use for replacement cost.¹⁵ Thus the cost of replacing a building twenty years from now, when it will be

¹⁵Robert Eisner, "Conventional Depreciation Allowances Versus Replacement Cost," The Controller, XXI (November, 1953), 533.

worn out and need replacement, is the cost figure used to ascertain replacement cost.

Supporting arguments. As already mentioned, this usage of replacement cost often appears in discussions about the calculation of depreciation charges.¹⁶ In fact, many of the authors using replacement cost in this manner assume, either implicitly or explicitly, that depreciation charges accumulate funds for the eventual displacement of the old asset with a new one. Obviously, such a concept of depreciation is erroneous, and the reasoning in support of replacement cost which is based on this premise is equally incorrect.

Opposing views. In the same way, those accountants who are set against the use of replacement cost often are guilty of this same fallacy—depreciation provides funds for replacement of assets. One author vigorously opposes the use of replacement cost in calculating depreciation because, as he puts it, if provision is made in the accounts for the replacement of fixed assets, why not anticipate all possible higher costs of all items and record these in the accounts.¹⁷ As is evident, this writer takes the definition of replacement cost (cost to replace an asset on some future date) and carries it to its

¹⁶Daniel Frosch, "Supplement to Peloubet's Proposal for Depreciation Based on Replacement Cost," The Journal of Accountancy, XCVII (February, 1954), 156.

¹⁷Maurice J. Kluger, "Opponent of Replacement-Cost Depreciation Cites Dangers," The Journal of Accountancy, XCVII (March, 1954), 279.

logical extreme in order to illustrate the futility of estimating depreciation charges on the basis of replacement cost.

Following a similar line of reasoning, another accountant emphasizes that the replacement of assets is a financial matter unrelated to accounting techniques. He remarks that cash can be put aside each year for the replacement of the asset regardless of the amount of the annual depreciation expense.¹⁸ His approach, then, recognizes that depreciation does not provide replacement funds; and, in addition, this approach provides a method of planning for the replacement of the asset without considering the depreciation expense.

Perhaps the most poignant argument offered in opposition to the use of future replacement cost is the one which objects to the use of this cost in the calculation of depreciation expense because it burdens the present stockholder with future asset replacement cost.¹⁹ If future cost to replace an asset is accepted as the definition of replacement cost, then this argument is a valid criticism; however, if some other interpretation of replacement cost is utilized, the argument is pointless.

On the whole, future cost to replace an asset may provide a suitable description of replacement cost under certain circumstances, such as in capital budgeting where plans are made for financing

¹⁸Abe L. Shugerman, "Historical Costs Vs. Deferred Costs as Basic Concepts for Financial Statement Valuations," The Accounting Review, XXVI (October, 1951), 494.

¹⁹Frosch, op. cit., 156.

future asset replacements. Nevertheless, as an explanation of the replacement cost concept, this view is found lacking; it does not provide a replacement cost for assets that will not be replaced, and it does not present a conceptual framework that could be integrated with present accounting theory. Consequently, the future cost to replace an asset, although invaluable to intelligent capital budgeting, does not embrace the many attributes that a consistent definition of replacement cost should include.

Appraisals

Instead of using the cost to replace an asset when it wears out--a cost that is difficult, and sometimes impossible to predict--an appraisal value of the asset may be employed. This is another method that may be used to arrive at asset replacement cost.²⁰

Explanation. When resorting to appraisals to get replacement cost, a company usually employs a competent appraiser to establish the current values of all noncurrent assets, such as factory buildings, land, and the major pieces of equipment. The liquid assets (receivables, cash, prepaid expenses) are not appraised because of their short-term nature; however, the market value of inventory may have to be determined if it is lower than cost.

Naturally, when appraisals indicate an increased value for the long-term assets, the capital account reflects the same increase;

²⁰Davis, op. cit., 228.

that is, the debit to an asset account is offset by a credit to some special capital account, usually appraisal surplus.²¹ In this way, the increase in the owners' equity arising from asset increments is sharply revealed to the statement reader.

Favorable comments. The fact that accountants have agreed upon a means of presenting appraisal results in the balance sheet points out that there is some acceptance of the use of appraisals as a medium for deriving replacement cost. One accountant observes that a higher valuation on the statement of financial position indicates to the reader of the statement that cost of replacement will be much higher than the historical cost, and that it is necessary to make provisions for this higher replacement cost.²² Furthermore, showing appraisal values on the balance sheet gives it a better appearance.²³

Opposition. Although these arguments have been advanced in favor of placing appraisals (replacement cost) on the balance sheet, there is plenty of opposition to such a move. The criticism most frequently raised against the appraiser by accountants is the appraiser's use of subjective judgment.

²¹J. H. Worman, "Appraisal Values: Their Treatment from an Accounting Viewpoint," The Journal of Accountancy, XXXVIII (November, 1924), 385.

²²John A. Wilson, "Fixed Asset Appraisals and Accounting," Canadian Chartered Accountant, XXX (February, 1937), 99.

²³C. W. Bairstow, "Adjusting the Books to the Appraisal," The Journal of Accountancy, XXXVIII (November, 1924), 380.

However, an English accountant says that the depreciation estimate which accountants calculate so precisely is little better than the appraiser's estimate.²⁴ According to the accountant making this observation, then, it seems that practicing accountants should not criticize the subjectivity of replacement cost values secured by the use of appraisals, for the amount reported in the accumulated depreciation account is just as subjective. However, the balance of the accumulated depreciation account is limited to the historical cost of the asset, but the appraisal value has no such limitation.

Still, accountants are not skeptical of the appraiser simply because of his use of subjective judgment. The experience with the asset writeups of the twenties and the writedowns of the thirties is a constant reminder of how the unwise use of appraisals can result in near disaster. Even before this period, however, accountants suspected the values arrived at by appraisers. One accountant suspiciously noted that some appraisal companies issue a form of contract in which they agree to make an appraisal that satisfies the client, or no fee is charged.²⁵ Thus accountants, whether or not fully justified in their opposition to the use of appraisals, do have some defense for their position.

²⁴"Depreciation and Appraisal," The Accountant, LXXXIV (May 16, 1931), 634.

²⁵Arthur K. Woodbury, "Physical Appraisal in Relation to Accountancy," The Journal of Accountancy, XI (December, 1910), 118.

In light of this brief survey of opinions for and against the use of appraisals in the financial statements, it may be observed that appraisals do make the balance sheet more meaningful. The method used in getting the appraisal value is important, however. For instance, the appraiser may use historical cost adjusted by a price index, either general or specific; he may rely on his knowledge of market supply and demand; he may utilize current market prices; or he may use a number of other techniques, most of which are too technical and involved to be covered in this study.

In other words, the appraiser has such a broad variety of estimating methods at his disposal that no precise explanation of replacement cost can be gleaned from his appraisals. Consequently, it is still necessary to seek an explanation of replacement cost in another area.

Current Transaction Value

As may have been noticed, appraisals do not differ materially from some of the other methods offered as means of securing replacement cost. Indeed, one author has mentioned that an appraisal may be used as an alternative to current market price when such a price is unavailable.²⁶

²⁶Robert T. Sprouse, and Maurice Moonitz, A Tentative Set of Broad Accounting Principles for Business Enterprises (New York: American Institute of Certified Public Accountants, 1962), 27.

Supporting arguments. However, the author who mentions the use of appraisals nevertheless strongly supports the use of current market price as an explanation of replacement cost, especially when the historical cost is no longer useful as a measure of the asset. One may object that such use of current market price is not so objective as historical cost, since the latter is established by an actual market-determined transaction, whereas the former is only an amount paid by some other business. This raises the question of whether the market price is any less objective simply because it is paid by some other company. Is a transaction objective evidence only when the company in question is a party to the exchange?

According to Sprouse and Moonitz, the answer is no; the market price is independent of the expectations or plans of the individual entity. Therefore, it ". . . represents a neutral evaluation of economic benefits."²⁷

Fritz Schmidt, an accountant who contributed many articles to the replacement cost discussion, already held this position in 1930. He argued that the replacement cost of an economic good is the market price prevailing on the day of real or assumed replacement; further, he adds, there is no need for a purchase to be made on

²⁷Ibid.

this date, nor is it necessary for replacement even to be under consideration.²⁸

Nevertheless, can any benefit be derived from placing current market values in the balance sheet? Generally, such a replacement cost balance sheet is revealing to individuals interested in the economic condition of the enterprise on the balance sheet date. Historical cost does not tell much about the present financial state of the firm. On the other hand, the replacement cost gives the current market value of each asset, the only value on which the earning capacity of the firm can be based.²⁹

Besides providing a solid basis for evaluating the earning capacity of a firm, the use of replacement cost to value assets may provide other benefits; for example, in the valuation of marketable securities at current market value. This method of valuation does away with the carrying of identical securities at varying prices simply because they were purchased on different dates.³⁰ Also, the manipulation of profits by selectively choosing the securities to be sold is eliminated, for all securities are recorded at the same value.

So current market value can be used to advantage in deriving replacement cost for marketable securities; but, can it be used in

²⁸Fritz Schmidt, "Importance of Replacement Value," The Accounting Review, V (September, 1930), 239.

²⁹Ibid.

³⁰Sprouse, and Moonitz, op. cit., 27.

getting replacement cost for inventories? It not only can, but is already being used to arrive at the market value for inventory where it is lower than cost. This market value is synonymous with replacement cost; and, moreover, accountants have been using it for over thirty years—but only for market declines in inventory value, not market increases.³¹ Thus accountants have gained valuable experience in the determination of current market value for inventories, experience that can possibly be used in evaluating other assets.

Current market value and replacement cost. Current market value seems to be a good explanation of replacement cost in most circumstances. It explains replacement cost in a simple and understandable manner; and, in many cases, current market value does become replacement cost—for instance, where lifo is used in calculating cost of sales.

In some cases, however, it is impossible to obtain a current market price. In particular, there is probably no organized market on which twenty-story buildings are regularly traded, nor is there an established market for certain specialized machines. Only in the case of inventory, marketable securities, and selected pieces of equipment is there generally a smoothly operating market.

³¹C. Rufus Rorem, "Replacement Cost in Accounting Valuation," The Accounting Review, IV (September, 1929), 167.

It is possible, of course, to use a specific index to adjust the historical cost of the assets for which there is no market, or an appraisal of the asset may be made. But, the instant these other devices are used to achieve replacement cost, current market value is no longer being used—it is abandoned for other means.

Where there is a choice between using current market value and an index number adjustment, usually the current transaction value should be used because it gives a figure that can be more appropriately called replacement cost. This is true because it is sometimes difficult to understand that a figure derived from an index number adjustment can be called replacement cost; but current market value presents no such problem, for it is easy to see its relation to replacement cost.

It is clear, then, that current market value does have some advantages over various other explanations of replacement cost; but current market value has some limitations; and these limitations do prevent it from giving the comprehensive definition of replacement cost that can explain the term in a uniform manner under all circumstances.

Cost of Replacing Service Potential

Most of the definitions examined so far have dealt with the replacement of the physical asset or with a figure that is related to some physical aspects of the asset. For example, current market value is related to the price of a physical object, and so is the

cost to replace an asset on some future date; the next few paragraphs, however, explore the use of replacement cost in a different manner--as the cost of replacing the service potential of an asset.

Explanation. The service potential of an asset in most instances refers to its productive capacity. In other words, the capacity of a machine to print 120 pages per minute means that it has a service potential of 120 pages per minute, and its replacement cost is the cost to buy a machine that can print 120 pages per minute.³²

Thus, where advances in the construction of printing machines have enabled manufacturers to construct a printing press almost identical to the 120 page per minute machine, except that the new machine prints 240 pages per minute, the replacement cost of the old press is not the cost of the new machine, but one-half of this amount. It is not the full cost because the new machine can replace the productive capacity of two old machines; that is, one-half of the new machine can, conceptually, replace the old one.

It is possible that other cost concepts are related to this case; for example, if the old press has no salvage value, its book value is considered a sunk cost. Similarly, the amount necessary to acquire the extra productive capacity is an incremental cost. Although these cost concepts (sunk cost and incremental cost) are

³²R. K. Mirrielees, "Using Replacement-Value Depreciation in Costs," N.A.C.A. Bulletin, XXV, Sec. I (May, 1954), 1156.

related to the printing press example, their implementation is not discussed because this study is primarily concerned with replacement cost.

Advantages. By using replacement cost in the manner described in the printing press example, a firm that considers this cost in its decisions on pricing and on calculating depreciation expense can readily maintain its productive capacity over the long run.³³ Moreover, the firm can probably give its stockholders and creditors very informative financial statements.

In addition to maintaining earning power, this concept of replacement cost is flexible to apply. In fact, a large number of different means can be used to derive the figure that represents the replacement cost of an asset: current market price can be used to derive replacement cost for an asset such as delivery equipment where there is a functioning market for this good; estimates from manufacturers on the cost to build an asset may be used for assets that have no organized market; and, where such estimates are unavailable, specific index numbers may be utilized to get replacement cost.

Consequently, this description of replacement cost is not limited by a particular technique, as some of the other interpretations were; it encompasses many methods of determining replacement

³³Official Decisions and Releases: The Accounting Implications of Changing Money Values," op. cit., 253.

cost and allows the accountant to decide which one best represents replacement cost.

This apparent generality of replacement cost, when described as the cost to replace productive capacity, does not mean it is a widely used explanation. On the contrary, this notion of replacement cost is not generally used, and for a good reason--it is difficult to derive.³⁴ The cost to replace the service potential of a railroad is probably impossible, or at least highly impractical, to ascertain with any degree of accuracy.

This description of replacement cost is also abstract, and because most accountants are daily involved in the manipulation of concrete data, they are generally uninterested in abstruse theories--concrete, workable techniques will usually attract their attention. Therefore, the accounting journals are replete with articles on the use of various methods to obtain replacement cost.

On the whole, it seems that describing replacement cost as the expenditure necessary to replace the service potential of an asset provides an explanation that is more general and universally applicable than any of the other definitions just reviewed. It is an acceptable definition for assets that have no current market price, as well as for the ones that are bought and sold daily. Although it is an acceptable definition for most assets, the cost to

³⁴James C. Bonbright, "Railroad Valuation With Special Reference to the O'Fallon Decision," The American Economic Review, XVIII (March, 1928), 195.

replace the service potential is generally applied only to long-term assets since they are the assets usually possessing the service potential in a business. This definition, then, overlooks the current assets of the business.

III. A PROPOSED REPLACEMENT COST DEFINITION

It is possible to construct a generally applicable definition of replacement cost by modifying slightly the last description; that is, by changing the cost to replace the service potential to the cost to replace the earning potential. Thus, replacement cost can be described as the cost to replace the earning potential of an existing asset with a similar asset; in other words, the cost to replace a building with a similar building, a truck with a similar truck, and so forth. Such a definition, then, encompasses short-term assets as well as long-term assets.

For example, the replacement cost of a refrigerator carried in the inventory of an appliance store is the cost for another similar refrigerator that will bring the store the same profit (that is, the same gross margin percent) as the present one. In this way, changes in the style or the durability of refrigerators will not make it impossible to secure their replacement costs because exact duplicates are unavailable. Moreover, current market price may provide the best approximation of replacement cost in this case.

Current market value, however, may not be the best approximation of the replacement cost for equipment used in a factory

since there may be no operating market for this equipment. Consequently, some other technique must be used to obtain a replacement cost value for the equipment. In line with the definition given above, several techniques can be utilized: index number adjustments, appraisals, or an estimate of the cost to make the equipment.

If an index (a specific index of the market price of this kind of asset, or an index for each of the component costs of the asset) is used, the historical cost is adjusted to a current cost that is approximately the cost to replace the earning potential of the asset. An appraisal gives the same type of information, but it is derived by an appraiser who is outside the business and, consequently, acting as a more or less independent agent in arriving at his estimate. It may be possible to obtain an accurate estimate of the cost to replace the earning potential of the asset now being used by requesting a manufacturer to make an estimate of the cost to replace this type of equipment.

Granted, these methods of getting replacement cost do have some weaknesses, and they were pointed out in the preceding discussion; but, a technique should not be discarded merely because it is lacking in perfection. Some accountants are reluctant to accept any explanation of replacement cost because the methods for deriving it contain some flaw, minute or major.³⁵ However, it seems inconsistent

³⁵John Peoples, "Depreciation Calculated on Replacement Cost Versus Depreciation on Historical Cost," The New York Certified Public Accountant, XXIII (April, 1953), 248.

for accountants to criticize the imperfections present in some of the methods suggested for deriving replacement cost and, on the other hand, to overlook the weaknesses of some widely used accounting procedures.

For example, the devices used by accountants to arrive at the cost of sales are not perfect, and procedures used in making year-end adjustments are not completely free of defects.

One well known accountant has noted that the practitioners and academicians advocating the use of replacement cost cannot even agree on how it is to be determined. Consequently, he surmises that it is impossible to put such an idea into practice.³⁶

Many Ways of Deriving Replacement Cost

Still, a variety of means for implementing replacement cost should not cause the accounting profession to recoil in horror from its use. Depreciation expense can be calculated in a number of different ways: straight line, sum of the years digits, declining balance—to name just a few. Accountants, nevertheless, do not object to the calculation of depreciation expense; in fact, they are very upset if a business tries to avoid reporting depreciation expense on its income statement.

It seems plausible to utilize a number of methods for getting replacement cost in the same manner that several techniques can be

³⁶Eric L. Kohler, "Why Not Retain Historical Cost?" The Journal of Accountancy, CXVI (October, 1963), 38.

used in calculating depreciation expense. In other words, to compute depreciation expense, the cost of the asset consumed in the current period of operations is derived by the straight line, declining balance, or some equally acceptable method; and in deriving replacement cost, the cost to replace the earning potential of an asset is arrived at by the use of index numbers, current market value, or appraisals.

Of course, the depreciation expense is limited to the historical cost of the asset--a cost which sets an upper limit on the amount of depreciation that can be charged against revenue for each asset. Replacement cost, on the other hand, has no such built-in limit; accordingly, perhaps the historical cost of an asset after being adjusted by a general price index could be used as the upper limit on the replacement cost of any particular asset.

In conclusion, it seems that describing replacement cost as the cost to replace the earning potential of an asset with a similar asset does provide a definition that can be used to explain replacement cost adequately; in addition, this explanation allows a number of procedures to be used in obtaining replacement cost, and therefore the weaknesses of any particular technique do not invalidate the definition.

IV. SUMMARY

In looking over the multitude of meanings attached to replacement cost, it is evident that most of them are limited in scope; more

specifically, they apply only to long-term assets or short-term assets, or they can only be used to describe the cost to replace an asset on some future date. As a result, these definitions do not give an explanation that is very useful in analyzing the replacement cost concept.

For this reason, a definition of replacement cost that encompasses all usages of the term (except the cost to replace an asset on a future date) was developed. This description of replacement cost provides a very useful foundation for the extensive review of the replacement cost concept in a succeeding chapter.

The next chapter explores the possible results that can arise from the use of replacement cost in the accounting process. Both the income statement and the balance sheet are involved, and the impact of replacement cost on these statements is examined in order to illustrate its effects on operating results and financial position.

CHAPTER V

UTILIZATION OF REPLACEMENT COST: ITS IMPACT ON PROFITS AND FINANCIAL POSITION

Now that a definition of replacement cost has been established, it is important to establish an understanding of some repercussions on the financial statements that arise from the employment of replacement cost. Using replacement cost will not only influence the asset values appearing on the balance sheet, but will also determine, to some extent, the size of the net profit figure presented in the income statement. To provide a concrete example of some of these consequences, several hypothetical cases are illustrated in the following pages.

First, the results of using replacement cost in the valuation of current assets, particularly merchandise inventory, are illustrated; that is, a numerical example is used to demonstrate the effect on inventory value of using replacement cost during periods of both rising and falling prices. Second, the impact of replacement cost utilization in the valuation of long-term assets is considered, especially the effect of using replacement cost in the valuation of depreciable assets such as buildings and equipment. These examples, although not presenting any hitherto unknown facets of replacement cost, do provide a definite illustration of many factors entangled in the replacement cost arguments.

I. CURRENT ASSETS

Although the majority of current assets are stated at their most recent value, it is possible for one or more of the assets to have an historical cost that is unlike the replacement cost of the asset--the outlay cost of inventory may be different from its replacement cost; the historical cost of short-term securities may be different from their replacement cost (because this is true in many cases, accountants often report short-term marketable securities on the balance sheet at their current market value). Accordingly, an illustration of the outcome of using replacement cost in current asset valuation is given with particular attention being paid to the use of replacement cost in valuing inventory.

Inventory and Replacement Cost

Of the numerous assets that can come under the influence of replacement cost, inventory is probably one of the most easily recognizable ones, mainly because businessmen are constantly faced with the problem of replacing inventory. For this reason, an inventory example is used to demonstrate the results of employing replacement cost in valuing current assets.

In order to avoid an excessively detailed example, a firm that sells only one product is considered. First, the firm is considered as a retail store that buys all of its merchandise ready for sale; then, the situation of a manufacturer is considered--the manufacturer makes only one product. Also, the consequences of rising prices and

the results of falling prices on both the income statement and the balance sheet are illustrated. In both of these instances it is assumed that the firms involved are using the fifo method of calculating the cost of sales. To simplify the example even more, the ending inventory is assumed to equal the beginning inventory, i.e., purchases exactly equal sales.

Assume that a retailer has ten units of inventory on hand at the beginning of a period, and that these units have a cost of \$1 per unit both at the beginning and the end of the period. To further simplify the case, the sales price is assumed to equal exactly the current purchase price, and the replacement cost of the ending inventory is \$2 per unit. The question now is: What value of inventory should appear on the balance sheet?

Balance sheet effects. If the historical cost method is used, the value for the inventory on the balance sheet is \$10. This historical cost method of reporting inventory value is generally followed by most accountants in presenting the inventory value on the balance sheet.

However, if the replacement cost of the inventory is used, the inventory value appears on the balance sheet as \$20. This higher value reflects the cost to replace the units of inventory presently on hand with similar units. The result in this case is an inventory figure on the balance sheet higher than the historical cost, and this gives, among other things, a better current ratio for the business.

Many accountants object to such a procedure because they oppose the anticipation of any type of gain--a practice that is repugnant to most accountants.¹ There are, however, some accountants who do argue in favor of presenting replacement cost on the balance sheet because it gives more informative data to the statement reader, particularly about the present condition of the business.² The balance sheet, of course, does not present the entire picture of the business, and it is necessary to consider also the influence replacement cost has on the income statement.

Income statement results. The primary effect on this statement is a lower figure for cost of sales; that is, the calculation of the ending inventory on the basis of replacement cost will result in a lower cost of sales figure, and consequently a higher net profit from operations.

In order to provide a clear illustration of the different effects on the income statement caused by the historical cost technique and the replacement cost method, income is first calculated in an example using historical cost. The information in this

¹Wilbert E. Karrenbrock, and Harry Simons, Intermediate Accounting (third edition; Chicago: South-Western Publishing Company, 1958), 48.

²Fritz Schmidt, "Importance of Replacement Value," The Accounting Review, V (September, 1930), 239.

example is based on the assumption that prices have remained stable.

The historical cost income statement is shown below:

Sales		\$100
Beginning inventory	\$ 10	
Purchases	<u>100</u>	
Goods available for sale	\$110	
Ending inventory	<u>10</u>	
Cost of sales		<u>100</u>
Profit		<u><u>-0-</u></u>

On the other hand, if replacement cost is used to calculate the profit, the following income statement is derived:

Sales		\$100
Beginning inventory	\$ 10	
Purchases	<u>100</u>	
Goods available for sale	\$110	
Ending inventory	<u>20</u>	
Cost of sales		<u>90</u>
Profit		<u><u>\$ 10</u></u>

This \$10 "profit" appears on the income statement because the replacement cost of the ending inventory, which is higher than the historical cost, is used to calculate the cost of sales, thereby giving recognition to the higher inventory value. It may be argued that the \$10 is profit because the assets owned by the business are now more valuable than they were at the beginning of the period;

however, accountants generally do not recognize the gain because it is unrealized.³

Perpetual inventory method and rising prices. Although the periodic method of calculating cost of sales was used in the preceding example, the perpetual method can be utilized, and the next example is designed to illustrate its use. In contrast to the first example, prices are assumed to be rising, and, as a result, both the selling price and the purchase price are going up. In addition, it is assumed that the firm sells ten units for each sale, and purchases the same number of units for each purchase. As already mentioned, the firm is following the fifo inventory method and selling price is the same as the current purchase price. Also, the first purchase is made at the same time as sale "b," and the second purchase is simultaneous with the "c" sale, and so forth. Table I, on page 93, presents the information for the historical cost method.

As indicated in the right column, this method of computing profit results in a \$10 gain; a gain that arises because the cost of the earliest inventory on hand is charged against the revenue. On the other hand, if replacement cost is used to compute the cost of sales, no profit arises. This is illustrated by Table II on page 94.

³Willard J. Graham, "Defining Income," The Journal of Accountancy, CX (August, 1960), 30.

TABLE I
PROFIT CALCULATION USING HISTORICAL COST

Sale	Purchase	Cost of Sales (fifo)	Selling Price	Profit
a	\$10*	\$10	\$12	\$2
b	12	12	14	2
c	14	14	16	2
d	16	16	18	2
e	<u>18</u>	<u>18</u>	<u>20</u>	<u>2</u>
Totals	\$60	\$70	\$80	\$10

Source: Original

* Beginning inventory

In Table II the use of replacement cost to calculate the cost of sales erases those profits shown in the first table where fifo and historical cost were used in calculating cost of sales. No profit results when replacement cost is used because the most up-to-date inventory cost is charged against sales; as a result, no illusory profits arise because of the changes in the value of inventory.

TABLE II
PROFIT CALCULATION USING REPLACEMENT COST

Sale	Purchase	Cost of Sales ¹	Selling Price	Profit
a	\$10*	\$12	\$12	-0-
b	12	14	14	-0-
c	14	16	16	-0-
d	16	18	18	-0-
e	<u>18</u>	<u>20</u>	<u>20</u>	<u>-0-</u>
Totals	\$60	\$80	\$80	-0-

Source: Original

* Beginning inventory

¹Based on replacement cost

Use of lifo. The same results as those secured from using replacement cost can be obtained from the use of lifo if the firm makes a purchase before any of the beginning inventory is sold. For example, if the preceding instance of replacement cost utilization is modified so that purchase "a" coincides with or slightly precedes sale "a," the lifo cost of sales will correspond to the replacement cost of the goods sold. Although this example is obviously very simple, many business circumstances are quite similar; in fact, one

author has said that the use of lifo is in reality a use of replacement cost that is condoned by accountants.⁴

Replacement cost lower than historical cost. The examples just presented illustrate the influence on the balance sheet and the income statement of a replacement cost that is higher than historical cost; nevertheless, it is just as possible for the replacement cost to be lower than the historical cost. Accordingly, the following examples demonstrate how such a condition affects the balance sheet and the income statement.

Once more, beginning and ending inventory are assumed to contain the same number of units, and the number of units purchased equals the number of units sold. In particular, consider the retailer who has ten units of product in both his beginning and ending inventory; the per unit cost of both inventories is \$2, and the replacement cost of the ending inventory is \$1 per unit. The balance sheet prepared at the end of the period will exhibit the merchandise inventory in the following manner:

Merchandise Inventory (at lower of cost or market) \$10

In other words, the procedure of reporting inventory at lower of cost or market provides the same results that replacement cost gives, when the replacement cost is lower than historical cost. This

⁴John Coughlan, "The Guises of Replacement Cost," The Accounting Review, XXXII (July, 1957), 439.

generally accepted use of the lower inventory value is usually justified by the doctrine of conservatism, not by any replacement cost argument.⁵

Income statement effects. Market declines in inventory have been entered in the accounts of businesses for a number of years by accountants. The most noticeable argument that has developed from this practice concerns the method of reporting any material declines in inventory--whether such declines in value should be recognized in the cost of sales figure, or whether they should be reported separately.⁶

Obviously, the effect on the income statement of a replacement cost lower than the historical cost will be the opposite from that where replacement cost is the higher cost. For example, the retailer in the preceding illustration would have an income statement like the one shown at the top of the following page. In this instance, sales are \$100. The \$10 loss on this statement is attributable to the decline in value of the inventory; that is, the lower replacement cost of the ending inventory resulted in a higher cost of sales which caused the \$10 loss.

⁵Carl T. Devine, "The Rule of Conservatism Reexamined," Journal of Accounting Research, I (Autumn, 1963), 127.

⁶Karrenbrock, and Simons, op. cit., 267.

Sales	\$100
Beginning inventory	\$ 20
Purchases	<u>100</u>
Goods available for sale	\$120
Ending inventory (at replacement cost)	<u>10</u>
Cost of sales	<u>110</u>
Profit	<u><u>\$(10)</u></u>

Income statement in a period of falling prices. The above income statement is based on the assumption that prices are stable until the end of the period, at which time purchase price declines. In contrast, the next example demonstrates the consequences on the income statement of falling prices throughout the period. As in one of the preceding cases, the perpetual inventory method is used in this one, and the sales are assumed to equal the purchases. The next table, Table III, demonstrates the effect on profits of using historical cost and a fifo inventory flow assumption. In this table sales of ten units are made for each sale, and ten units are bought for each purchase. The first sale is "a," the second is "b," and so forth. The first purchase is "o," the second "c," and so on.

In this example (which is structured so that current selling price is always equal to current purchase price) a loss of \$10 arises

because the old inventory costs--higher than the present ones--are charged against the selling price, which is constantly falling.

TABLE III
PROFIT CALCULATION USING HISTORICAL COSTS IN A
PERIOD OF FALLING PRICES

Sale	Purchase	Cost of Sales (fifo)	Selling Price	Profit
a	\$20*	\$20	\$18	\$(2)
b	18	18	16	(2)
c	16	16	14	(2)
d	14	14	12	(2)
e	<u>12</u>	<u>12</u>	<u>10</u>	<u>(2)</u>
Totals	\$60	\$80	\$70	\$(10)

Source: Original

* Beginning inventory

The use of replacement cost, on the other hand, will give a situation in which no profit results, as illustrated in Table IV. No loss is reported when replacement cost is used because the current cost of the inventory is charged against sales, and because the selling price is assumed to equal the current purchase price (an assumption made to simplify the example).

TABLE IV
 PROFIT CALCULATION USING REPLACEMENT COSTS
 IN A PERIOD OF FALLING PRICES

Sale	Purchase	Cost of Sales ¹	Selling Price	Profit
a	\$20*	\$18	\$18	-0-
b	18	16	16	-0-
c	16	14	14	-0-
d	14	12	12	-0-
e	<u>12</u>	<u>10</u>	<u>10</u>	<u>-0-</u>
Totals	\$60	\$70	\$70	-0-

Source: Original

* Beginning inventory

¹Calculated on replacement cost

The reader has, no doubt, noticed that these examples are simple, and may think that perhaps they are too simple. Nevertheless, these illustrations do provide concrete examples of the effect of using replacement cost in the retail or wholesale firm's financial statements: the inventory value, higher or lower than historical cost, which appears on the balance sheet; the higher or lower profit figure, which is shown in the income statement. There are, however, many firms operating that do not purchase finished goods for resale, but take raw materials and convert them into finished goods which

are then sold. Almost all manufacturing and raw material processing firms fall in this classification.

Manufacturers and replacement cost. These businesses must use a different approach to the utilization of replacement cost from the retailer. Although such an approach may seem difficult, or even impossible, it is workable. One manufacturer, not operating in the United States, has established a system for integrating replacement cost data into the accounts of the business through the use of standard costs.⁷

These standard costs are established when prices are at some particular level; then, whenever there is a significant change, either an increase or a decrease, in any of the cost components used in setting the standard costs, these standard costs are adjusted. In addition, an annual appraisal of the standard costs is made to determine that no significant cost change related to the standard cost is overlooked.⁸ This procedure for utilizing replacement cost in a manufacturing firm will serve as a basis for the next example of replacement cost utilization.

In this example the manufacturer is producing a product which is manufactured by combining one unit of raw material with one unit of labor; for added simplicity overhead burden is omitted. The

⁷A. Goudekot, "An Application of Replacement Value Theory," The Journal of Accountancy, CX (July, 1960), 39.

⁸Ibid.

standard costs of \$1 for material and \$2 for labor were originally established when the index of material prices was 100 and the index of labor costs was also 100 (these index numbers are hypothetical, and are assumed to be 100 for the year the standard costs were established in order to make the adjustments clear and readily understandable).

Rising prices. Because it is impossible for a firm to adjust continually its standard costs for market price changes—for example, daily adjustments—the costs in this illustration are changed quarterly; consequently, the following tables contain only quarterly index numbers for the labor costs and material costs. Table V demonstrates the adjusted standard labor costs for the four quarters of a particular year.

TABLE V
REPLACEMENT COST ADJUSTMENT FOR STANDARD LABOR COSTS

Quarter	Labor cost index	Standard cost*
1st	100	\$2.00
2nd	105	2.10
3rd	110	2.20
4th	115	2.30

Source: Original

*Adjusted to replacement cost

The next table displays the adjusted standard material costs for a particular year.

TABLE VI
REPLACEMENT COST ADJUSTMENT FOR STANDARD MATERIAL COSTS

Quarter	Material cost index	Standard cost*
1st	100	\$1.00
2nd	110	1.10
3rd	120	1.20
4th	130	1.30

Source: Original

*Adjusted to replacement cost

By combining the preceding two tabular examples, a table showing the replacement cost for each unit produced can be derived. This is Table VII, shown on the following page.

The rising prices, then, result in a standard cost (replacement cost) for each unit of production that remains abreast of the upward-moving prices. During a period of falling prices, on the other hand, a manufacturer would find that his standard costs--adjusted to replacement cost--are falling in proportion to the decline in his material and labor costs. The results, therefore, of a declining price level are the reverse of those for a rising price level.

TABLE VII
UNIT REPLACEMENT COST FOR GOODS PRODUCED

Quarter	Standard labor cost	Standard material cost	Total cost
1st	\$2.00	\$1.00	\$3.00
2nd	2.10	1.10	3.20
3rd	2.20	1.20	3.40
4th	2.30	1.30	3.60

Source: Original

It is apparent, therefore, that replacement costs can be incorporated into the cost accounting system of a manufacturer through the medium of standard costs, particularly where the standard costs are adjusted periodically to align them with current costs. A manufacturer utilizing this technique can accordingly secure replacement costs that are similar to those obtained by the retailer who uses current market prices in his determination of replacement cost.

Utilizing Replacement Cost for Other Current Assets

Marketable securities. Though inventory was used in the preceding examples of current assets and replacement cost, it is possible also to use this current value for other assets--marketable securities, for example. These securities are usually purchased with the intention of holding them for a short period of time; consequently,

there is ordinarily a readily available market where the stocks or bonds can be quickly sold.

It is easy, as a result, to secure current market prices for any of the securities; these prices (replacement costs) can be placed in the balance sheet to report the value of the securities, thereby showing this current asset balance at an up-to-date value. One major advantage of valuing marketable securities in this manner is that identical securities are not carried at different amounts simply because they were acquired at different prices on various dates.⁹ Additionally, the current market price gives information about the amount of cash that can be received for the securities at the present time; this is important information to the statement reader because of the purpose for which the investment was made, i.e., to utilize idle funds until they are again needed.

Probably all current assets can, in short, be stated at replacement cost in the principal financial statements although only one particular asset, merchandise inventory, was illustrated in this chapter. The others were not discussed since the results are the same whenever replacement cost is used to value any current asset--namely, a current value on the balance sheet, and an up-to-date cost in the income statement.

⁹Robert T. Sprouse, and Maurice Moonitz, A Tentative Set of Broad Accounting Principles for Business Enterprises (New York: American Institute of Certified Public Accountants, 1962), 25.

II. FIXED ASSETS

Having demonstrated the effects of using replacement cost to value current assets, it seems reasonable also to examine the financial impact of valuing fixed assets at replacement cost. These assets, like most current assets, are generally reported at their outlay (historical) cost; and, in order to show how replacement cost causes results that are at variance with historical cost effects, an example of the influence of replacement cost on the balance sheet and the income statement is given in the following pages.

Depreciation and replacement cost. Because most of the debate revolving around replacement cost and fixed assets is concerned with depreciable assets, an example of the depreciation expense calculation, both for historical cost and replacement cost, is shown in the succeeding pages. It is important to note, first of all, that the replacement costs for long-term assets can be determined in two ways: through the use of indices of machinery costs or construction costs, or through the use of appraisals.¹⁰ Either method will usually give similar results, i.e., in times of rising prices the appraisal value will be above the historical cost, and the index-adjusted value will also be above the historical cost of the asset.

¹⁰J. L. Davis, "Depreciation on Replacement Cost," The Controller, XXI (May, 1953), 228.

Balance Sheet Effects

Appraisal value. Consider the position of a business that owns assets with an original cost of \$100,000 which, the company now suspects, are worth much more. The firm may hire appraisal engineers to make an estimate of the plant assets in order to determine their present value. If the appraisal reveals that the assets are worth \$150,000, then this value will appear on the balance sheet as the replacement cost of the assets. The plant assets, as a result, are shown at a value above their historical cost; and the journal entry to record this increased value can also give effect to the change in capital--usually crediting appraisal surplus.

If, however, a firm believes that its assets are worth less than their historical cost, as was the situation in the 1930's, the appraisal will report a value below the historical cost of the asset. In this case, the assets may be appraised at a value of \$75,000, thus reporting plant assets at a current value on the balance sheet.

Index number adjustment. Instead of using appraisals to obtain the replacement cost of plant assets, a firm may use specific cost indices to approximate replacement cost. Consider, again, the firm with assets purchased for \$100,000; in addition, assume that these assets were purchased in 19x1 and have an estimated life of twenty years, and will possess no scrap value at the end of this period. Likewise, assume that these assets are all the same type of

equipment--for instance, trucks. Based on these assumptions the following table can be constructed:

TABLE VIII
DERIVATION OF EQUIPMENT REPLACEMENT COST FROM INDEX NUMBERS

Year	Historical cost	Index of machinery cost	Replacement cost
19x1	\$100,000	100	\$100,000
19x2	100,000	105	105,000
19x3	100,000	107	107,000
19x4	100,000	109	109,000
19x5	100,000	111	111,000

Source: Original

Even a cursory glance at Table VIII will reveal that the replacement cost of the equipment goes up with the equipment cost index. This procedure of determining replacement cost is strongly recommended by one accountant. He says that index numbers give a value that is not only useful for internal reports, but one that is also useful in assuring adequate insurance coverage for assets.¹¹

¹¹Ibid., 230.

Although the preceding table gives an illustration of the effects on replacement cost of rising prices, it is also possible that the prices of a particular type of equipment are falling. This condition is illustrated in the following table.

TABLE IX
DERIVATION OF EQUIPMENT REPLACEMENT COST FROM
INDEX NUMBERS--FALLING PRICES

Year	Historical cost	Index of machinery cost	Replacement cost
19x1	\$100,000	100	\$100,000
19x2	100,000	98	98,000
19x3	100,000	96	96,000
19x4	100,000	94	94,000
19x5	100,000	92	92,000

Source: Original

It is obvious, then, that the falling equipment prices, as revealed in the equipment cost index, cause a drop in the replacement cost of the equipment to a level below that of the historical cost. The equipment value, consequently, appears on the balance sheet at a lower amount each time the index of equipment prices goes down.

Income Statement Effects

The balance sheet is not the only statement influenced by the use of replacement cost; the income statement is definitely affected, especially when depreciation expense is computed on the replacement cost of the asset. For example, notice the outcome of using the replacement cost established in the preceding examples as a basis for calculating the depreciation expense (the straight line method is used) for this imaginary firm. Table X on the next page shows the results of using historical cost to compute depreciation and the outcome of calculating depreciation expense on the basis of replacement cost.

A review of this table reveals that the depreciation expense calculated on the replacement cost in a time of rising prices is higher than that computed on the historical cost; furthermore, the total replacement cost depreciation over the life of the asset will not add up to the original outlay cost of the asset. This last condition is used by some accountants as an objection to replacement cost depreciation. This method does, nevertheless, provide an up-to-date depreciation expense comparable to the other expenses on the income statement.¹²

¹²Nelson H. Foley, "Plant Values and Their Effect on Costs and Inventory Valuations," N.A.C.A. Bulletin, XXIV, Sec. I (September 15, 1942), 58.

TABLE X
HISTORICAL COST DEPRECIATION AND REPLACEMENT COST DEPRECIATION

Year	Historical cost	Replacement cost	Historical cost depreciation	Replacement cost depreciation
19x1	\$100,000	\$100,000	\$5,000	\$5,000
19x2	100,000	105,000	5,000	5,250
19x3	100,000	107,000	5,000	5,350
19x4	100,000	109,000	5,000	5,450
19x5	100,000	111,000	5,000	5,550

Source: Original

Just as rising prices affect the presentation of fixed assets in the balance sheet and the amount of depreciation expense appearing in the income statement, falling prices also have an influence on the results appearing in these two statements. Table XI on the following page presents the influence on the income statement of replacement cost depreciation in a period of falling prices. This table, in contrast to the one above, shows that depreciation expense in a period of falling prices will be smaller for the replacement cost method than for the historical cost method.

Applications of replacement cost depreciation. The illustration and discussion of replacement cost depreciation during a period

of rising prices is not purely conceptual; several corporations have reported, in their quarterly statements sent to stockholders, added depreciation because of higher replacement costs.

TABLE XI
HISTORICAL COST DEPRECIATION AND REPLACEMENT COST
DEPRECIATION--FALLING PRICES

Year	Historical cost	Replacement cost	Historical cost depreciation	Replacement cost depreciation
19x1	\$100,000	\$100,000	\$5,000	\$5,000
19x2	100,000	98,000	5,000	4,900
19x3	100,000	96,000	5,000	4,800
19x4	100,000	94,000	5,000	4,700
19x5	100,000	92,000	5,000	4,600

Source: Original

For example, in 1947 U.S. Steel informed its stockholders that added depreciation of \$6.7 million was charged against revenue for the first half of the year, and in the same year Libbey-Owens-Ford Company took added depreciation because of higher replacement costs for many of its assets.¹³

¹³Carman G. Blough, "Current Accounting Problems: Replacement and Excess Construction Costs," The Journal of Accountancy, XXIV (October, 1947), 334.

It is possible for a manufacturer to incorporate replacement cost depreciation into his cost accounting system if he makes use of standard costs. The procedure is the same as the one mentioned in relation to replacement cost and inventory; that is, the standard costs are first established when costs are at a particular level, then the standard costs are adjusted for any changes in prices in order to bring the standard costs in line with replacement cost.¹⁴

More specifically, consider a plant that has a standard production of 10,000 units per year and an historical cost depreciation of \$10,000 per year; the amount of depreciation expense per unit is \$1. Suppose, at the same time, that the replacement cost depreciation is \$15,000 for the same manufacturer. In this case, the replacement cost depreciation per unit is \$1.50. Very simply, then, this is the manner in which the replacement cost depreciation can be incorporated into the cost records of a manufacturer.¹⁵

III. SUMMARY

Although the examples in this portion of the study are simple, and at times overly simple, they do provide concrete illustrations of the impact that replacement cost has on both the financial position and the earnings of a particular firm. Moreover, these examples may

¹⁴R. K. Mirrelees, "Using Replacement-Value Depreciation in Costs," N.A.C.A. Bulletin, XXXV, Sec. I (May, 1954), 1157.

¹⁵Ibid.

not reveal any undiscovered relationships, but they do provide demonstrations of how replacement cost can affect the operations of a business. Such examples are important to a study of replacement cost because they provide specific illustrations of several points at issue in the replacement cost dispute.

These replacement cost arguments are presented, analyzed, and criticized in the following chapter. The usefulness of the examples of this chapter will become apparent after several of the arguments about replacement cost are examined, arguments such as those opposed to replacement cost depreciation and those in favor of it, and arguments favorable to the use of replacement cost in costing goods sold and opposing comments.

CHAPTER VI

UTILIZATION OF REPLACEMENT COST: SOME AREAS OF CONFLICT

There is no doubt that the use of replacement cost in the accounting process affects the financial statements prepared by a firm; nor is there any doubt about the fact that replacement cost has been used in preparing balance sheets and income statements for some firms; but there is some doubt--a great deal, in fact--about the suitability of using replacement cost in the preparation of the accounting statements. Indeed, there are some strong arguments advanced against the use of replacement cost.

Some of these arguments and some of the arguments offered in defense of this cost concept are reviewed in the succeeding pages in order to see whether one line of reasoning is more convincing than the other. This review proceeds by examining the arguments in relation to the concepts developed in a preceding chapter and by looking at their relevancy to present day accounting.

Attention is first directed to the debate concerning the utilization of replacement cost in valuing current assets (for example, inventory and marketable securities); likewise, the suitability of computing the cost of sales on the basis of replacement cost is also examined. Following this review of the merits of replacement cost in current asset valuation, a survey is made of the role of this cost in plant and equipment asset valuation, especially

the part that replacement cost can play in the computation of depreciation charges.

Finally, those arguments which do not readily fit into one of the above categories (such as those arguments concerned with the merits of replacement cost in general) are discussed and analyzed to see if they reveal any important factors worth considering.

I. CURRENT ASSETS AND REPLACEMENT COST

Inventory Valuation

The practice of using replacement cost to value the current assets on the balance sheet can easily be brushed aside as nonsense by the accountant who believes that all the current assets are already stated in the accounts at their most current values. Another accountant, however, may retort that the wide acceptance of the lower of cost or market procedure for valuing inventory refutes this line of reasoning. Furthermore, the second accountant may argue, in a period of rising prices the present value of the inventory can easily be different from the value shown in the accounts; and in such a case, the replacement cost of the inventory represents at least the minimum economic value of the asset to the enterprise.¹

Balance sheet effects. If this argument for replacement cost is followed and this cost is used to value the inventory on the

¹Robert T. Sprouse, and Maurice Moonitz, A Tentative Set of Broad Accounting Principles for Business Enterprises (New York: American Institute of Certified Public Accountants, 1962), 29.

balance sheet, the doctrine of stating assets at cost--except for asset write-downs allowed by conservatism--is violated because the inventory appears in the statement at some value other than historical cost. Equally important, an inventory valuation above cost violates the doctrine of conservatism since this type of procedure anticipates a portion of profit before it is realized.² In brief, reporting of inventory at replacement cost when this cost is above the outlay cost violates two strong dogmas of accounting and, therefore, it appears that the practice should not be followed.

It is possible, on the other hand, that the violation of these two accounting concepts does not unequivocally preclude from the balance sheet a replacement cost value for inventory. According to one writer, showing the present economic value of the firm's assets is more important than adhering to tradition bound rules; for the replacement cost value shows the inventory value as of the balance sheet date, but the historical cost of the inventory shows its value on some past date.³ In other words, the replacement cost of the inventory is an up-to-date value for inventory that the statement reader can readily use in his analysis of the current financial position of the firm; but the historical cost is an old value valid only for the date on which the inventory was purchased, a value which

²Wilbert E. Karrenbrock, and Harry Simons, Intermediate Accounting (third edition; Chicago: South-Western Publishing Company, 1958), 48.

³Fritz Schmidt, "Importance of Replacement Value," The Accounting Review, V (September, 1930), 239.

does not give the statement reader a sharp indication of current value.

Income statement effects. In addition, a glance at the effects on the income statement gives added support to the position favoring replacement cost. The use of replacement cost to compute cost of sales yields a gross margin figure based on current selling price less the current cost of sales, as demonstrated in the last chapter. This procedure allows a firm to segregate the profit (loss) realized from profit margins from that resulting because of price changes.⁴ Statement readers, as a result, are made more aware of the actual earning potential of the business than they are if both the profit (loss) secured from price changes and that obtained from profit margins are lumped together.

Another author has mentioned that an income statement on which replacement cost is used to obtain cost of sales is more truly a statement of profit and loss than a statement based on historical cost.⁵ Moreover, the writer continues, the traditional techniques for preparing the income statement result in a statement that is more like a reconciliation of the retained earnings balance than a statement of net profit.⁶ It is apparent, then, that this argument places little faith in the historical cost income statement.

⁴Sprouse, and Moonitz, op. cit., 29.

⁵George B. McCowen, "Replacement Cost of Goods Sold," The Accounting Review, XII (April, 1937), 277.

⁶Ibid.

Historical cost in the income statement is also downgraded by those accountants who are concerned with the decision making process of management. For instance, these accountants argue that a manager will make a correct pricing decision or a correct buying decision much more frequently when replacement cost is used instead of historical cost.⁷ More simply stated, this argument says that a manager can make better decisions concerning his inventory if he is provided with up-to-date inventory cost data instead of historical cost data which may not be indicative of present economic value.

A strong voice is raised against the use of replacement cost in valuing inventory on the balance sheet or the income statement in a recent issue of The Journal of Accountancy. The author of this article says that the holding period for most inventory is too short and that variations in price are too small to warrant the use of replacement cost in valuing the inventory. Also, the longer the holding period the less salable an inventory item becomes; that is, the longer a company keeps a particular good on hand the less the justification for using replacement cost to value that good.⁸ Basically, this argument says that it is impractical to utilize replacement cost in the valuation of inventory because the benefits derived are not worth the effort expended.

⁷Ibid.

⁸Eric L. Kohler, "Why Not Retain Historical Cost?" The Journal of Accountancy, CXVI (October, 1963), 37.

On the whole, it seems that the valuation of inventory on the balance sheet at replacement cost is beneficial if current valuations are desired in this statement. However, the inclusion of replacement cost in the balance sheet does violate the cost doctrine and, in some cases, the doctrine of conservatism. Therefore, the tradition of historical cost valuation and the wide acceptance of conservatism must be compared with the benefits gained by a current valuation for inventory in the balance sheet in order to arrive at a sound decision on replacement cost and inventory valuation.

On the income statement, likewise, one must examine the advantages of using a current cost for cost of sales as compared to the usefulness of clinging to historical cost exclusively. It is feasible to use the lifo cost procedure and arrive at a cost of sales figure that is very close to that secured from the use of replacement cost; therefore, it is possible to follow a cost doctrine while at the same time obtaining the benefits of replacement cost.

Valuation of Other Current Assets

Although inventory is a current asset that is often mentioned in relation to replacement cost, there is one other current asset that often gets involved in replacement cost debates--namely, marketable securities. According to the American Institute of Certified Public Accountants these temporary investments should be placed in the statements on the basis of a lower of cost or market

valuation.⁹ Securities valued on this basis, however, possess a value coincident with replacement cost only when this cost happens to be lower than historical cost.

As a result, some accountants question the logic of presenting temporary investments at replacement cost when it is lower than historical cost, but on the other hand using historical cost when replacement cost (market value) is above outlay cost.¹⁰ It seems that to be consistent accountants should follow the same procedure whether market value is above or below historical cost.

Also, by consistently using market value (replacement cost) identical securities are carried in the accounts at the same value, a value that may not be consistent with the historical cost value because the securities were purchased on different dates. In addition the possibility of profit manipulation through the selective selling of securities is eliminated.

If the accountant allows temporary investments to appear in the statements at a value above historical cost, he is abandoning the cost principle. Further, the difference between historical cost and the higher market value represents an anticipation of profit--something which accountants are generally reluctant to do.

⁹Committee on Accounting Procedure, American Institute of Certified Public Accountants, Accounting Research Bulletin No. 43: Restatement and Revision of Accounting Research Bulletins (New York: American Institute of Certified Public Accountants, 1953), 23.

¹⁰Karrenbrock, and Simons, op. cit., 180.

The present market price, in addition, is not objective evidence like historical cost, i.e., historical cost is supported by an actual verifiable transaction negotiated between a firm and some outside party whereas the current market value, although established by a market transaction, involves two parties outside the business.

Nevertheless, some accountants argue that for items like marketable securities the current market price (established in a normally operating market) does provide objective information on the amount of cash into which the securities can be converted.¹¹ It may also be argued that using replacement cost to value these assets will give valuable information to the statement reader because of the purpose for which the investment is made; that is, as a temporary utilization of excess cash balances.

To summarize, then, marketable securities like inventory cannot be valued at replacement cost or historical cost without encountering opposing arguments. Most of the arguments center on the adherence to traditional accounting principles and historical cost, and on the presentation of current values in the statements and replacement cost. In order to determine whether historical cost is better than replacement cost (or vice versa) it is necessary to decide which is more important, current information or adherence to certain generally accepted, traditional concepts.

¹¹Sprouse, and Moonitz, op. cit., 25.

II. LONG TERM ASSETS AND REPLACEMENT COST

The replacement cost of plant assets has received attention at various times during the past fifty years, especially when price levels were undergoing rapid change. For example, during the 1920's prices rose to what was considered a stable level well above the prices of the preceding years; and, as a result, many assets purchased between 1910 and 1920 were written up to their replacement cost values. During the 1930's, on the other hand, numerous assets were written down to their replacement costs.¹²

These writeups and writedowns generated a great deal of discussion among accountants about the acceptability of using replacement cost in the accounting records. Some of the discussion originating at the onset of the depression and that of later years is reviewed in the following paragraphs.

Plant Assets on the Balance Sheet

Usually the fixed assets of a business are included on the balance sheet at their historical cost less accumulated depreciation, with no indication of present market value. This historical cost presentation is based on both the cost concept and the going concern assumption. The cost concept, obviously, says that all assets should be reported in the statements at historical cost, adjusted for

¹²A. C. Littleton, "Value or Cost," The Accounting Review, X (September, 1935), 272.

depreciation and amortization; and the going concern assumption implies--quite strongly--that the market values of the fixed assets are unimportant.¹³

Show fixed assets at replacement cost. Despite the unimportance of the current market values of the fixed assets from the going concern viewpoint, some accountants think such values are significant. More specifically, they argue that the historical cost does not represent the amount of capital being used by a business on the date of balance sheet preparation; only replacement cost can reveal the amount of capital embodied in the enterprise on any particular date.¹⁴ In other words, the individual fixed asset values--particularly their replacement costs--are important to the statement reader.

According to this argument it is important to reveal the actual present amount of capital employed in the business in order that the earning potential of the firm can be analyzed by a statement reader. Those accountants opposed to the use of replacement cost, however, usually argue that the earning power of the business determines its total value, and that putting replacement cost values in the balance sheet implies a quitting concern concept.

¹³H. A. Finney, and Herbert E. Miller, Principles of Accounting: Intermediate (fifth edition; Englewood Cliffs: Prentice-Hall, Inc., 1960), 167.

¹⁴Schmidt, op. cit., 241.

It is argued on the other hand by replacement cost advocates that the replacement cost values on the balance sheet are important because they represent the amount of capital it would take to operate a similar firm. In addition, much of the earning power of a firm depends upon the management, i.e., a progressive, skillful manager can earn a greater return from a given amount of capital than a manager not possessing those qualities inherent in a superior manager.¹⁵ The total value of a firm, consequently, is composed of the assets used in the business and the managerial skill possessed by the firm; and following from this conclusion, one can argue that the replacement cost of the assets on the balance sheet is important in order to evaluate the skillfulness with which a group of managers are operating a given firm.

The statement reader who is interested in the future prospects of a company is considered by another author. He argues that "because people act in the present and in the future, the current value of a fixed asset is preferable to some past exchange price."¹⁶ In short, the statement reader is interested in the present day value of the asset so he can make intelligent decisions about the firm publishing the statements.

Replacement cost of fixed assets and some accounting concepts.

The arguments favoring replacement cost on the balance sheet for

¹⁵Ibid.

¹⁶Sprouse, and Moonitz, op. cit., 27.

fixed assets seem quite convincing when considered by themselves; however, when they are examined in relation to some generally accepted accounting ideas, certain conflicts appear.

For example, accountants generally rely on objective evidence in obtaining the values posted to the accounts: they usually require that a transaction take place before any amount of revenue can be recognized. Displaying replacement cost valuations on the balance sheet for fixed assets means that the accountant must report values which are unsupported by a transaction between the firm and an outside party. The accountant is sometimes forced to rely on his own subjective judgment or that of some other individual--himself, if index numbers are used; others, if appraisals are used--to determine the replacement cost values. This possible reliance on subjective judgment is opposed by many accountants.

Added opposition comes from the accountants who support the doctrine of conservatism. They argue that assets should never be reported at a value in excess of historical cost, for this represents an anticipation of profit, profit that should be recognized only on the sale of the asset.¹⁷ The accountant who reports a replacement cost value higher than the historical cost of a fixed asset therefore finds himself in conflict with the doctrine of conservatism.

¹⁷Carl T. Devine, "The Rule of Conservatism Reexamined," Journal of Accounting Research, I (Autumn, 1963), 132.

Another conflict arises when the nature of the balance sheet is considered. This statement is, according to the American Institute of Certified Public Accountants, a collection of account balances carried forward after the books of a business are closed.¹⁸ And because the books are kept on the historical cost basis, the balance sheet will obviously contain only historical cost values.

A novel solution to the problem of fixed asset valuation on the balance sheet was suggested by an enterprising accountant in 1935. He suggested that instead of placing asset values on the balance sheet accountants should place a picture of the assets on the statement. In this way the statement reader could place any value on the plant that he thought proper.¹⁹ It is highly improbable, however, that modern accountants would accept a balance sheet decorated with photographs; besides, the practical problems involved in such a proposal make it unworkable for many firms.

In summary, it appears that arguments advanced in favor of reporting fixed asset replacement values on the balance sheet, although quite convincing, do encroach upon several generally accepted accounting concepts. Therefore, it is necessary for an

¹⁸Committee on Terminology, American Institute of Certified Public Accountants, Accounting Terminology Bulletins: Review and Resume (New York: American Institute of Certified Public Accountants, 1953), 12.

¹⁹T. H. Sanders, "Fixed Assets in the Balance-Sheet," The Journal of Accountancy, IX (April, 1935), 263.

accountant to consider the implications of these concepts whenever he advocates the use of replacement cost in valuing fixed assets.

Opposition to fixed asset replacement cost. The principal arguments advanced in favor of using replacement cost to value fixed assets have been reviewed and analyzed in the preceding paragraphs; the following pages present the principal arguments used to oppose replacement cost valuation. Each one of these arguments is presented and then analyzed to examine its validity.

Replacement cost inaccuracy. A proposition often advanced against the use of replacement costs in valuing fixed assets concerns the accuracy with which these values are ascertained. It is usually argued that because these values are difficult to obtain, wide scope is left for extremes of personal opinion.²⁰ For example, replacement cost values may be secured by the use of specific index numbers, appraisals, or current market values; each of these may give a different value for replacement cost.

A particular index number will result in one replacement cost value, another index number may result in a different value, and if indices of the component costs of an asset are used, a still different value may be derived. Appraisal values will vary from one appraiser to another, and an appraiser may use several different procedures to arrive at the appraisal value of an asset. Market

²⁰ John Peoples, "Depreciation Calculated on Replacement Cost vs. Depreciation on Historical Cost," The New York Certified Public Accountant, XXIII (April, 1953), 248.

value for a fixed asset (if available) might vary from day to day, and there may not even be a reliable market value for the asset in question.

It is easy to understand, then, why accountants are a little suspicious of replacement cost values. However, it may be possible that accountants are placing too much emphasis on an exact amount for the replacement value; maybe an imprecise but up-to-date value is superior to an outdated historical cost.

The replacement cost, besides, may not be such an unacceptable valuation for specific assets; in fact, the asset values accountants enter in their records when a firm is purchased for a lump sum are determined in approximately the same way that replacement cost values are obtained--namely, appraisals and current market values. If accountants can arrive at satisfactory values for this type of transaction, they should be able to utilize the same procedures to get satisfactory replacement cost values for the balance sheet.²¹

Accountants who oppose replacement cost because it is not a perfectly accurate valuation of the fixed asset should perhaps examine some of the practices they follow to obtain account values. Not all of the procedures utilized by accountants provide exact values--for example, depreciation calculations--and thus it seems a little inconsistent for an accountant to attack replacement cost

²¹Maurice E. Peloubet, "Are We Giving Away Our Capital Without Knowing It?" The New York Certified Public Accountant, XVIII (June, 1948), 444.

because it is not determined in an extremely precise manner. It is important, however, for accountants to be on guard against replacement cost values which are merely unsupported guesses; but, on the other hand, accountants must remember that specific index number adjustments and current market values are not unsupported guesses.

Prices move up and down. The cyclical movement of prices brought about by alternating periods of prosperity and depression serves as an additional proposition for accountants opposed to replacement cost. This cyclical price movement can be used as an argument against any kind of adjustments to financial statements for price changes, but it is often mentioned in the debate on replacement cost.

Simply stated, this proposition argues that the changes in asset values are fluctuations that will be negated by later offsetting price movements.²² A price increase now in the market value of a fixed asset will be eliminated later (how much later is unclear) when the price falls.

This case against replacement cost valuation would seem plausible except for the fact that prices have been continually trending upward since the depression; and, in addition, price fluctuations do not follow a symmetrical pattern. Moreover, if

²²J. Fred Weston, "Revaluations of Fixed Assets," The Accounting Review, XXVIII (October, 1953), 485.

balance sheets were prepared only when the market values were the same as the historical costs of the assets, the statements could be prepared only once during each business cycle--at the point where the price levels caused by the cycle were equal to the historical costs of the assets, assuming all assets were purchased on the same date.²³

Therefore, in light of recent and expected price movements, it seems that this argument does not have much merit as an objection to reporting fixed assets at their replacement cost values.

Obsolete assets. Another hypothesis offered against the use of replacement cost in fixed asset valuation notes the incongruity of using replacement cost to value an asset when it cannot be replaced in kind.²⁴ Indeed, the equipment presently being used by a firm may be replaceable with more productive equipment that is capable of twice the present output of the firm. In this case, opponents of replacement cost argue that such values are meaningless since they apply to assets that are of a different character from those now owned by the business.

The sense in which replacement cost is used by this group of accountants must be noted; they consider the term to mean the cost of replacing the asset with an exact duplicate. When this meaning is attached to replacement cost, it is usually quite easy to refute the

²³Ibid.

²⁴W. A. Paton, "Accounting Problems of the Depression," The Accounting Review, VII (December, 1932), 266.

reasoning offered in support of replacement cost; but if a more general explanation of the term is used (for instance, the cost to replace the earning potential of the asset), the argument does not stand up. As a result, this objection to the use of replacement cost does not raise any serious problems in the use of replacement cost if the term is understood to mean something other than the cost of an exact duplicate.

Abnormal economic conditions. During the depths of the depression some accountants questioned the use of replacement cost because of the depressed and abnormal economic conditions prevalent at that time. These accountants were extremely skeptical of the replacement cost values obtained in the early 1930's because construction activity was greatly curtailed and normal markets for materials and supplies were disrupted.²⁵

The replacement cost estimates obtained at this time were unreliable because any current market value was subject to change drastically at any time; appraisals were not very accurate because the appraiser had no stable prices on which to base his estimate; and estimates from manufacturers probably were much lower than normal because of the difficulty of securing enough orders to keep their plants operating. Obviously, then, accountants could raise serious objections to the replacement cost values obtained in the depression.

²⁵Ibid.

Present day accountants, however, are not faced with depression conditions, but are witnessing a favorable economic climate. As a result, this argument does not have much significance in the light of the relatively stable conditions currently prevailing in the economy.

Cost of getting a replacement cost estimate. Besides the depression hypothesis, it is argued that obtaining annual replacement cost values is too costly for a business. That is, the possible benefits that might be gained from the use of replacement cost are outweighed by the cost of those benefits.²⁶

Such an argument may have been valid during the 1930's when the primary method used to get replacement cost was to hire an appraiser rather than to use other means, such as index number adjustments. However, now the replacement cost is easily obtainable for most assets at a reasonable cost if specific cost indices are used. One company in the Netherlands calculates replacement costs for all of its assets each quarter,²⁷ and an American company uses replacement costs in the calculation of depreciation charges for its internal statements.²⁸ It appears, then, that the use of specific

²⁶Ibid.

²⁷A. Goudekot, "An Application of Replacement Value Theory," The Journal of Accountancy, CX (July, 1960), 37-47.

²⁸J. L. Davis, "Depreciation on Replacement Cost," The Controller, XXI (May, 1953), 228-230.

index numbers makes computation of current replacement cost values feasible for almost any company interested in doing so.

In the preceding presentation and analysis of the arguments opposed to the use of replacement cost valuation on the balance sheet, the basic concepts of accounting reviewed in an earlier chapter were not mentioned. Discussion of these concepts was omitted because those anti-replacement cost arguments cited are generally in agreement with the major theses of accounting. In particular, most of the cases advanced against replacement cost rely, at least implicitly, on the cost concept and on the concept of objectivity; they do not violate any of the basic accounting concepts, and so discussion of their relation to these concepts was considered irrelevant.

Replacement Cost of Plant Assets and the Income Statement

A great deal of controversy has arisen over the practice of computing depreciation expense on the basis of replacement cost. Most of the individuals in favor of this practice cite the benefits gained from reporting an up-to-date depreciation charge on the income statement. But the accountants and investors who are opposed to such a method of computing depreciation stress the lack of precision in such a calculation as well as the difficulty of obtaining a reliable replacement cost value. Both of these points of view are discussed in the next few pages.

Replacement cost depreciation and asset replenishment. One of the early arguments offered in favor of replacement cost depreciation stressed that the accumulated depreciation should be large enough to provide for the replacement of the asset at the end of its useful life.²⁹ This proposition was offered, as one would expect, during a time of rising prices when the historical cost of an asset was less than the cost of buying one to replace it. The accumulated depreciation account balance at the termination of the life of the old asset, as a result, was not so large as the cost of the new asset; and this worried some accountants.

The nature of the depreciation charge must be examined in order to see if this hypothesis offers strong support for replacement cost depreciation. The depreciation expense calculation, as noted in an earlier chapter, is made in order to allocate the historical cost of an asset over its estimated useful life.³⁰ The account credited when the depreciation expense is recorded simply reveals the amount of the historical cost that has been charged to revenue since the asset was purchased; it does not represent an accumulation of funds for any purpose. This accumulated depreciation account therefore cannot be used to purchase a new asset, and the argument that depreciation should be computed on replacement

²⁹D. R. Scott, "Valuation for Depreciation and the Financing of Replacement," The Accounting Review, IV (December, 1929), 225.

³⁰Committee on Terminology, American Institute of Certified Public Accountants, op. cit., 25.

cost in order to provide for the replenishment of an asset is not a valid support for replacement cost depreciation.

Current depreciation cost. In contrast to this argument, which was advanced during a period of rising prices, is the one which appeared during the depression. The emphasis at this time was not on the need for replacement cost depreciation as a means of providing funds for asset replacement, rather the importance of getting an accurate net income figure was stressed.³¹ Thus, when prices began falling, the use of depreciation to accumulate funds was overlooked in the rush to compute net income properly.

The use of replacement cost depreciation may seem like a strange way to get a correct net income, whether prices are rising or falling. The strangeness dissipates, however, when the essence of the proposition is analyzed.

Depreciation expense is normally calculated through dividing the historical cost of the depreciable asset by the estimated life of the asset (the life may be stated in terms of physical units or time units such as years) so that a depreciation rate per unit or period is obtained. Annually this depreciation rate is multiplied by the number of physical units produced or the number of time periods that have elapsed to determine the annual depreciation charge. The charge is naturally based on the historical cost of the

³¹R. D. Haun, "Two Present Day Problems of General Financial Accounting," The Accounting Review, VIII (June, 1933), 117.

asset, a cost that might be far out of line with present asset costs; thus, depreciation expense, which is based on the historical cost, is not comparable to other more current costs which appear in the income statement--wages, rent, and so forth.

The accountants who offer replacement cost depreciation as a remedy for this situation say that this type of depreciation will provide a depreciation expense that is comparable to the other expenses on the income statement. They contend that it will give a measure of the current economic cost of using the depreciable assets, i.e., the replacement cost depreciation charge measures the current amount of the asset consumed.³² A current depreciation expense when combined with the other expenses which are stated on a current basis will provide a total expense figure that makes it possible to compute a correct net income (correct in terms of matching current costs with current revenue).

However, such a net profit figure is not compatible with the net income generally computed by accountants. The American Institute of Certified Public Accountants defines net income as the difference between realized revenue and incurred cost.³³ Included in the incurred cost is depreciation expense which this same body

³²Donald A. Corbin, "Depreciation Based on Replacement," The Journal of Accountancy, XCIX (January, 1955), 26.

³³Committee on Accounting Procedure, American Institute of Accountants, Accounting Research Bulletin No. 9: Report of Committee on Terminology (New York: American Institute of Accountants, May, 1941), 72.

describes as a process of cost allocation. In other words, this accounting body supports an explanation of net income that allows no room for replacement cost depreciation.

Yet accountants favoring this kind of depreciation maintain that such charges do enable a business to compute a true net income. It is therefore necessary to explore the meaning attached to the term profit by these accountants.

Generally speaking, the accountants favoring replacement cost depreciation discuss profit in terms of the assets available for distribution to stockholders after provision is made for the preservation of the firm's present capital.³⁴ For example, in a time of rising prices fictitious profit figures may appear because of depreciation charges based on an outdated historical cost. These apparently high profits may serve as a motivation for dividend payments to stockholders, payments that deplete the capital of the business. Accordingly, the accountants favoring replacement cost depreciation say that a current depreciation charge would give a correct net income figure which would prevent a business from unknowingly reducing its capital through dividend payments.

Another important consideration in replacement cost depreciation is the process of matching. This process refers to the task accountants face in preparing periodic financial statements--namely,

³⁴Fritz Schmidt, "The Basis of Depreciation Charges," The Harvard Business Review, VIII (April, 1930), 264.

the correct matching of revenue and expense. The accountant must charge the total expense incurred in a particular period against the total revenue earned in that same time period in order to show the financial success or failure of the business.³⁵

Insofar as replacement cost depreciation is concerned, the accountant is faced with the alternative of charging either a possibly outdated historical cost or a current cost against the revenue for a particular period. Thus, once more, the accountant is faced with a choice of placing a current cost in the income statement, secured by using replacement cost in the depreciation calculation, or of adhering to the traditional accounting procedures, i.e., computing depreciation expense on the basis of historical cost.

Opposition to replacement cost depreciation. Despite the pleas for an up-to-date depreciation charge put forth by numerous accountants, there are still many of them who oppose the use of replacement cost depreciation. Some of the typical hypotheses offered against this manner of computing depreciation are discussed and analyzed in the upcoming pages.

Depreciation and funds accumulation. In spite of the pronouncements by the American Institute of Certified Public Accountants that depreciation does not provide funds, many accountants still argue that replacement cost depreciation is invalid

³⁵Karrenbrock, and Simons, op. cit., 6.

because accounting procedures should not be used to provide for asset replacements.³⁶ Moreover, this group of accountants argues, depreciation charges based on replacement cost are very uncertain since the true replacement cost cannot be known until the asset is replaced.³⁷

Following this same line of reasoning, another writer criticizes the burdening of present stockholders with the cost of future asset replenishments.³⁸ In other words, the accumulation of funds for the replacement of assets on some future date is borne by the present stockholders if depreciation charges are based on replacement cost.

A different approach is utilized by an author who says that accountants arguing in favor of replacement cost assume that depreciation charges accumulate funds. Since it is obvious that depreciation does not gather funds for a business, the author says that replacement cost depreciation is useless and invalid.³⁹

³⁶Maurice J. Kluger, "Opponent of Replacement-Cost Depreciation Cites Dangers," The Journal of Accountancy, XCVII (March, 1954), 279.

³⁷Robert Eisner, "Depreciation Allowances and Replacements Restated," The Controller, XXII (May, 1954), 228.

³⁸Daniel Frosch, "Supplement to Peloubet's Proposal for Depreciation Based on Replacement Cost," The Journal of Accountancy, XCVII (February, 1954), 156.

³⁹James L. Dohr, "The Next Step in Depreciation Accounting," The Journal of Accountancy, XXCIX (February, 1950), 116.

An analysis of these arguments reveals that they rest on two basic assumptions: (1) replacement cost means the cost of buying an asset when one presently being used wears out, and (2) that depreciation charges provide funds--Dohr recognizes the fallacy in this contention, but he accuses his opposition of making this assumption.

The first supposition relies on a narrow conception of replacement cost as justification for the deductions it supports. If a broader definition of replacement cost is used, the arguments resting on the first assumption become irrelevant; they only show that a particular replacement cost concept is unworkable, not that the replacement cost concept is invalid. The second assumption is null because depreciation does not and cannot provide funds. This can be readily demonstrated by doubling the depreciation charge which appears on an income statement. Such an increase in depreciation expense should increase the funds provided by operations if depreciation can provide funds; however, an examination of the funds statement reveals that the amount of funds derived from operations does not change when the depreciation charge is doubled.

Capital impairment prevented without replacement cost. One of the reasons offered in favor of replacement cost depreciation is that such depreciation charges help a firm to maintain its original capital. Some accountants, however, scoff at this reasoning; they say that capital can easily be maintained by appropriating retained earnings. Such an expedient will indicate that a large part of the

firm's earnings must be retained in order to provide for replacement of assets at costs that are higher than the historical costs of the assets.⁴⁰

This proposition, then, looks at replacement cost depreciation as a device for maintaining capital; but it ignores the idea of showing current costs in the income statement. This omission is probably made because, as one accountant mentions, the current cost arguments are usually directed more toward the establishment of a selling price than to the determination of profits.⁴¹ Thus, it is argued that because replacement cost depreciation is directed toward the determination of selling prices, it is not reasonable to use it in preparing stockholder statements.

Basically, then, the arguments opposed to replacement cost depreciation can be summarized in two groups: arguments saying replacement cost depreciation does not provide the correct amount of funds for asset replenishment; and arguments saying that replacement cost depreciation is unnecessary to prevent impairment of capital.

Some General Arguments About Replacement Cost

The arguments that pertain specifically to current assets and to long-term assets were reviewed in the preceding pages; and in the following pages some arguments that pertain to replacement cost in

⁴⁰Robert F. Graham, "Valuation for Profit Determination," The Accounting Review, XV (June, 1940), 148.

⁴¹Ibid.

general are examined. Those arguments favoring this cost concept are reviewed first, followed by a look at some opposing viewpoints.

Rate of earnings on assets. The rate of earnings on total assets is a financial ratio that is often computed by accountants and financial analysts to analyze accounting statements. Under present accounting procedures, the total asset figure used in this ratio is simply the total historical cost of all assets owned by the business. Some of these historical costs are current, some are only a few years old, and others are many years old; as a result, the total assets figure is a mixture of dollars of varying value.

An author writing in the late 1930's objects to the misleading inferences that may be drawn from this situation. He says that if the higher replacement costs of the assets are not recognized, the high rate of earnings may give rise to misconceptions about the causes of the profits.⁴² In particular, a company which had purchased its assets in the depths of the 1930 depression could show in 1936 a very high rate of return on its total assets. The rate would be high simply because the general price level had risen since the time the assets were purchased and not because of superior earning power.

If, on the other hand, the assets of this firm were valued at their replacement cost in 1936, a much better indication of earning power would be presented to the statement reader. It is apparent,

⁴²Vernon A. Mund, "Financial Adjustment in Law of Cost," The American Economic Review, XXVI (March, 1936), 79.

then, that this argument, like most of the arguments in favor of replacement cost, stresses the value of current information about the business instead of adherence to traditional concepts.

Statement analysis and replacement cost. Many proponents of replacement cost stress that its utilization will provide up-to-date financial information for the individual in need of this information. However, opponents of replacement cost strongly object to this contention. These adversaries of replacement cost say that such values on the statements only confuse the statement analyst by presenting him with a conglomeration of values derived in a number of different ways.⁴³

Moreover, by adhering to cost the accountant permits the analyst to make any adjustments to book values that he thinks are necessary; the accountant only presents the analyst with the raw material--historical costs--needed for his evaluations.⁴⁴ If, for example, prices have risen, the analyst is left free to make any price level adjustments to the data that he feels are necessary.

These arguments seem sound and are solidly backed by the cost concept; but they presume that the financial analyst has a great deal of information which is unavailable to him. For example, most corporate balance sheets have several assets listed in their plant

⁴³Kohler, op. cit., 39.

⁴⁴Eugene L. Zieha, "Accountants Responsibilities and Index-Number Adjustments," The New York Certified Public Accountant, XXIII (September, 1953), 566.

and equipment section; however, only a total is given for each kind of asset. The date of purchase for each individual truck, lathe, or building along with its historical cost would have to be given to the analyst in order for him to make any meaningful adjustment for price changes.

If the analyst attempted to secure a current value for inventory he would again be stymied by a lack of relevant information. The inventory caption on most balance sheets contains many different products, and the amount by which the historical cost and market value differ may vary from one product to another. But the analyst has no way of getting this information.

It appears that the arguments of these two authors, Kohler and Zieha, are directed primarily at increases in asset values. When the value of an asset has undergone a decline, these two writers have no objection to a reduction of the asset value in the accounting records. For instance, Kohler supports the use of the lower of cost or market for valuing inventory.

It seems, then, that for declines in asset values, the statement analyst is considered incapable of making an adjustment for the downward movement in value; but for increases in asset values, accountants consider the analyst to be some sort of genius who can adjust the historical cost of each asset to its current value.

Comparability of data. Another case is offered against replacement cost on the grounds that use of this cost for current statements would make the information in these statements

incompatible with prior statements, thus making it difficult to analyze recent statements in light of past information.⁴⁵ Although this objection makes a valid point, it assumes that the firms preparing statements with replacement cost values thereon are going to make a sudden shift from historical cost to replacement cost with no period of transition.

If the firm utilizing replacement cost values in its statements prepared supplemental statements on the historical cost basis for five to seven years, the transition to replacement cost could be made without losing all comparability of present data to past data. Then, after replacement cost statements had been in use long enough to provide a financial history of the firm on its new basis of accounting, the supplemental historical cost statements can be discontinued.

Besides being unrelated to past financial data, it is postulated that the use of replacement cost by a business would destroy the comparability of its statements with the statements of other similar firms.⁴⁶ Although some accountants would argue that statements prepared on the present historical cost basis do not present comparable information anyway, this argument can be attacked for a different reason.

⁴⁵G. G. Richardson, "Accounting Under Changing Money Values," Canadian Chartered Accountant, LXI (November, 1952), 190.

⁴⁶Ibid.

If no company can change its accounting procedures until all companies change, then progress comes to a halt. For instance, if no company had agreed to use the lifo method of costing inventory until all businesses had agreed to do so, probably no firm would ever have adopted it.⁴⁷ Even if one does not consider the adoption of lifo as a step forward, he must admit that changes in accounting practices usually take place only after a few business firms experiment with a new procedure and find it workable.

Equitability of replacement cost. Although the utilization of replacement cost by a business firm affects the comparability of financial data, it also raises the question of equal treatment for all individuals having a stake in the firm. The stockholders, for example, are the ones who usually receive the benefits from the use of replacement cost; bondholders are hardly ever mentioned as needing protection against the changes in asset values.⁴⁸

Employees may also feel that they should receive some protection from changing prices if the common stockholders are given some protection against dilution of their investment which would be brought about by changing asset prices. Since this question of equitability is not related to accounting theory, no precise analysis can be made of its many ramifications in this paper. However, it is

⁴⁷C. Oliver Wellington, "Accounting Income vs. Economic Income," Canadian Chartered Accountant, LIV (January, 1949), 33.

⁴⁸Richardson, op. cit., 188.

a factor that will probably have to be considered if replacement cost is adopted by accountants.

Irreplaceable assets. One other objection to the use of replacement cost values in the statements, an objection unrelated to equity considerations, concerns those assets which cannot be reproduced; for example, a coal mine.⁴⁹ To establish a replacement cost value for such a mine, it is necessary to establish the cost of a mine with equal earning potential. But such a task is quite difficult since it involves estimates of underground reserves.

Patents, trademarks, and copyrights create the same sort of problem. How can the earning potential of a patent be evaluated when it may become obsolete at some indefinite future date? Similarly, the problem of deriving a replacement cost for trademarks and copyrights is complex, mainly because the cost of a similar asset with the same earning possibilities is probably nonexistent.

Accordingly, the accountant, if he decided to use replacement cost in the preparation of statements, would find it is impossible to secure a replacement cost for some assets, such as those just mentioned. Nevertheless, there are numerous other assets—such as inventory, buildings, and equipment--listed in the balance sheet for which replacement cost values are available.

⁴⁹Kenneth MacNeal, Truth in Accounting (Philadelphia: University of Pennsylvania Press, 1939), 158.

III. SUMMARY AND OBSERVATIONS

Current Assets

Current assets generally appear on the balance sheet at their most recent values, except in the case of inventory and temporary investments. These two assets according to accepted principles of accounting should appear at the lower of cost or market value. However, proponents of replacement cost maintain that it is inconsistent to report an asset at a lower value than historical cost when its market value is below historical cost and not report the market value when it is above historical cost.

Reporting the market value (replacement cost), whether above or below historical cost, presents up-to-date values in the balance sheet of the firm; and where these replacement costs are used in computing cost of sales, a better income statement is produced because current costs are charged against current sales revenue.

However, the use of replacement cost in valuing current assets may conflict with the widely accepted cost principle and the doctrine of conservatism. The cost principle is violated because current assets appear at a value other than historical cost, and the doctrine of conservatism is violated because asset values greater than historical cost might appear in the financial statements of the firm.

Long-Term Assets

There is a great deal of discussion about the suitability of reporting fixed asset values on the balance sheet at historical cost or replacement cost. Advocates of replacement cost maintain that this will give a better picture of the capital available for use in the business. Nevertheless, the utilization of replacement costs to value fixed assets runs contrary to the cost concept and the going concern concept.

Replacement cost values for fixed assets mean that the historical costs of some assets are abandoned in favor of more current valuations; and the going concern notion places primary emphasis on the overall valuation of the firm and deemphasizes the individual asset values. Thus, according to this concept, replacement cost values are unimportant in the balance sheet; only going concern values (historical costs) have any significance in the balance sheet. The lack of objective evidence is also used to attack replacement cost values in the balance sheet.

Depreciation expense computations on the basis of replacement cost are advocated by some accountants as a remedy for outdated depreciation charges. They maintain that depreciation when computed on the basis of replacement cost provides an up-to-date depreciation expense which is comparable to the other expenses appearing in the income statement. This proposal is attacked because some accountants argue that true replacement cost is impossible to determine, or that

means other than depreciation reserves should be utilized to provide for the replenishment of a firm's assets.

Using replacement costs in the financial statements is berated by some accountants because these costs in the statements would make statement analysis more difficult, so they say. They contend that the accountant is supposed to present the statement analyst with historical cost as his raw material, allowing the analyst to make any adjustments he feels are necessary. An examination of any financial statement reveals the difficulty of making such adjustments.

Some Observations

In looking over the array of arguments about replacement cost, one is immediately impressed with the large number of propositions offered against this concept. In fact, if the merits of replacement cost are judged by the number of arguments offered in support as compared to those pressed in opposition, replacement cost stands little chance of ever being used by accountants.

However, the presence of large numbers of opposing arguments does not indicate that replacement cost is useless; there are a number of applications which would prove worthwhile.

For example, the use of this cost in computing the cost of sales would provide an up-to-date cost in the income statement; and if replacement cost is also used in preparing the balance sheet, a current inventory value is reported here. Furthermore, by reporting

the long-term assets at their replacement cost a firm would give a current evaluation of the amount of capital which it presently employs.

This current valuation of capital would provide valuable information for the present stockholders who are interested in the rate of return the assets are earning. Such information would also help the stockholders to evaluate the performance of the present management.

Besides presenting significant information on the balance sheet, replacement cost valuations for long-term assets can be used to compute an up-to-date depreciation charge. Some business firms may have purchased their depreciable assets when the asset price was higher or lower than the current price of a similar asset. As a result, the depreciation charge, which is computed on the historical cost of the asset, is not an accurate measure of the amount of capital consumed in the current business operations. Replacement cost depreciation, on the other hand, would provide a better measure of the capital consumed in the present operations than the depreciation charge based on historical cost.

Although these applications of replacement cost do seem beneficial, they are not widely accepted by the accounting profession. Consequently, if replacement cost is to be accepted by accountants some orderly procedure must be established for instituting its use.

Such a procedure could be set up by the accounting profession on a test basis; and if the practice meets with wide approval, it

could be adopted for general use. One way of accomplishing this would be to attach supplemental statements prepared on the replacement cost basis to the historical cost statements now prepared by accountants.

If the replacement cost statements are widely accepted after several years of use, they could become the principal statements, and historical cost statements could be prepared as supplementary information for a period of years. By using replacement cost statements to provide supplemental information and then switching to historical cost statements as supplemental information, the transition from historical cost to replacement cost could be made smoothly and the earning history of the firm would not be destroyed.

Of course replacement cost statements would provide some problems for public accountants. However, if replacement costs were derived through the use of specific index numbers for long-term assets, the public accountant could verify the accuracy of the values in the same manner that he now verifies the balance in the long-term asset account. Moreover, by keeping both replacement cost and historical cost in the accounts the task of verification would be a relatively simple task.

When procedures other than specific index numbers are used, the accountant might have to use values arrived at by other professionals, such as appraisers. The accountant could choose some specific cost index which relates to the asset appraised and use it to review the reasonableness of the appraisal value. If the appraisal

does not differ materially from the adjusted historical cost, the auditor can accept the value; if the appraisal does differ materially from the value computed by the accountant, he can disclose in the statement how the replacement cost value was obtained.

If the replacement cost values are derived by referring to present market values, the accountant can examine recent price quotations to evaluate the reliability of the replacement cost values. This procedure is presently followed by accountants when examining the soundness of the market values used in lower of cost or market valuations.

Thus, replacement cost, although violating many generally accepted accounting ideas, could be put into practice if accountants decide that the up-to-date information provided by the use of replacement cost is more important than adherence to presently accepted doctrines. Until accountants make this decision--a decision which would probably accompany a reconsideration of the purpose of accounting--accountants should continue to employ the present generally accepted accounting principles.

CHAPTER VII

SUMMARY AND CONCLUSIONS

The value of using historical cost in the accounting process has long been recognized by accountants in the United States and in Europe; however, these accountants have not unequivocally supported the use of historical cost in all circumstances. During periods of rapidly changing prices, for example, the accountants generally abandoned the use of historical cost for a more meaningful cost such as replacement cost.

History

Germany. The use of replacement cost was sanctioned by the German Commercial Code as early as 1857. However, this usage of replacement cost was eliminated a few years after its inception when the Code was changed. In the aftermath of World War I replacement cost was once more used by German accountants to prepare significant financial statements for businessmen.

Later, when the explosive inflationary upheaval passed its peak and economic conditions became normal once more, a few German accountants still advocated the use of replacement cost in the accounting records. These accountants argued that replacement cost showed the present amount of capital employed in the business instead of outdated historical amounts. In addition, some German accountants

argued, the use of replacement cost in computing cost of sales and depreciation charges provides a more correct net income.

France. Like Germany, France also experienced an inflationary movement of prices at the end of World War I; and, also like Germany, many of her accountants suggested replacement cost as a means of preparing meaningful financial statements.

French accountants adopted several means of implementing replacement cost during this period. One of these consisted of a gold franc balance sheet prepared by converting the historical costs in the accounts to current values. The conversion was made by using the exchange rate between France and a gold standard country, usually the United States. Another commonly used procedure entered both the historical cost and the replacement cost in the accounts: the historical costs were entered on one side of the ledger sheet and the replacement costs were entered on the other side.

Accountants in France resorted to the use of replacement cost again after World War II when their nation was beset by inflationary price movements similar to those following World War I.

England. In contrast to the German and French accountants, the English accountants did not sanction the use of replacement cost until about 1954. Three English accounting organizations in that year expressed their approval of replacement cost; and one of them, the Society of Incorporated Accountants and Auditors, released a statement for its members setting forth specific instructions for the application of replacement cost to accounting practice.

United States. Much of the discussion of replacement cost in America came about as a result of changing price levels. However, unlike Europe, the earliest mention of replacement cost in the United States arose in public utility rate hearings. From these hearings the argument was taken up by accountants who became interested in the subject around 1910.

Not very much interest was generated until almost 1920. In that year a few accountants argued for the use of replacement cost in the financial statements; but not many of them agreed that it was necessary. Nowever, one year later the interest in replacement cost began to rise, and some accountants were calling replacement cost a generally accepted practice by 1923. Although replacement cost was not an unquestionably accepted accounting practice at that time, it was being used by a number of accountants who sanctioned the writeup of many assets during the 1920's.

The prosperous twenties were suddenly changed to the depression thirties. During this economic disaster, many accountants again argued for the use of replacement cost in the financial statements; they reasoned that since asset values were lower than their historical cost, these assets should be written down to the lower value. Consequently, many assets were written down during the depression of the thirties.

Summary. On the whole, it appears that accountants in Europe as well as in the United States are willing to accept the use of

replacement cost whenever there are abrupt and material price changes. The actions of accountants in Europe and the United States provide evidence for this conclusion.

Basic Concepts

Because the topic of replacement cost touches upon several important accounting concepts, a concise summary of the relevant concepts was included in this study. Some of the more important concepts are cost, objectivity, depreciation, and conservatism.

Cost. The cost concept simply requires that accountants record all assets at their historical cost. This cost should remain in the accounts until the asset is sold or used in the operations of the business at which time the cost is charged against revenue. This concept also prohibits accountants from reporting assets on the statements at a value higher than outlay cost.

Objectivity. To determine historical cost the accountant usually relies upon objective evidence; in particular, the document supporting the transaction such as a check or an invoice. Thus historical cost receives much praise because of its objectivity.

As used in accounting, the term objectivity refers to the expression of facts without any distorting influence from personal bias; and although accountants would prefer the ideal of complete objectivity in all their procedures, this cannot be done. Consequently, accountants do allow a small amount of subjective judgment to enter some of their evidence.

Depreciation. Another idea which is often subject to misinterpretation, both by accountants and nonaccountants, is the concept of depreciation. This idea describes the process whereby the historical cost of a fixed asset is allocated over the asset's useful life. Depreciation, then, is a process of allocation and not one of valuation. Moreover, depreciation charges do not accumulate funds, either for the replacement of an asset or for any other purpose.

Conservatism. The admonition to recognize all losses and to anticipate no gains probably best describes the doctrine of conservatism. This doctrine is based on the assumption that possible losses have a greater influence on the statement reader than possible gains; and, as a result, it is more important to report the losses than it is to report the gains. Basically, then, conservatism is concerned with reporting favorable conditions with some reluctance and reporting unfavorable events immediately.

Definition of Replacement Cost

Although there has been a great deal of discussion about replacement cost in the accounting literature, a generally accepted definition of the term has not been developed. Consequently, a number of definitions were reviewed in order to get a better understanding of the term.

Use of price indices. A general price index, although useful for making some types of price level adjustments, is not a suitable index for computing replacement cost. A specific price index, on the

other hand, is more suitable for use in computing replacement cost because it applies to only one particular asset or one group of assets. However, the specific index has several weaknesses: it does not take into account changes in the productivity of assets; it does not consider changes in construction methods where assets such as buildings are concerned; and it corrects the historical cost for price level changes as well as price changes caused by fluctuations in demand for the asset. Thus, historical cost adjusted by a specific price index is not a general explanation that can be used to describe replacement cost.

Cost to reproduce. Several variations of the cost to reproduce an asset were used by several accounting writers in their discussions of replacement cost. According to some of these writers the term applies to the cost of replacing the present asset with an exact duplicate. Such a definition, however, rules out the use of the cost whenever an asset is obsolete and no longer being produced.

The cost of replacing an asset on a future date is another meaning often attributed to replacement cost. Those accountants relying on this explanation of replacement cost often point out the hopelessness of trying to use replacement cost because accurate predictions of future costs are very hard to make. Some accounting writers who support the future cost to replace an asset as an explanation of the replacement cost concept, on the other hand, use this description because they want depreciation charges to accumulate enough funds to replace the asset when it is used up. This latter

reasoning in support of replacement cost is fallacious because depreciation does not provide funds.

Other explanations. Appraisals are also suggested as a means of securing replacement cost values, but this procedure is rejected by most accountants because of the lack of objectivity on the part of the appraiser. Current market values, like appraisal values, have been suggested as an explanation of replacement cost; and market values are a good explanation for replacement cost where the asset under consideration is bought and sold in a functioning market. However, there are certain assets for which there is no operating market, assets like buildings and specialized equipment.

The cost to replace the service potential of an asset is offered by still other accountants as the best way of explaining the replacement cost of an asset. In accordance with this definition, the replacement cost of an asset is determined by securing the present market price of a similar asset having the same production possibilities as the one presently owned by the business. This definition, however, cannot be applied to inventory items or to current assets.

To secure a definition of replacement cost that can be applied to assets in general--either productive or nonproductive--it is necessary to consider the earning potential of an asset. Since this is an ideal which is difficult to attain in all cases, many methods such as appraisals, current market value, or specific index number adjustments can be used to approximate the replacement cost.

Replacement Cost Arguments

The arguments in favor of and in opposition to the use of replacement cost were examined in this study to see whether there is any sound basis for the use of this cost concept. The propositions offered in favor of replacement cost generally stress the theme of up-to-date financial information.

Favorable propositions. Some accountants argue that inventory and marketable securities should be reported on the balance sheet at their replacement cost values because these values are more salient than the historical costs. In addition, when replacement cost is used in the computation of cost of sales, a current cost is charged against an up-to-date revenue; therefore, a better net profit figure is derived than if historical cost were used. It is important to note, nevertheless, that the use of timely costs in current asset valuation may violate the cost concept and the doctrine of conservatism as well.

Most of the arguments for fixed asset presentation on the balance sheet emphasize that historical cost does not reveal the actual amount of capital employed by the business in its present operations. If replacement cost is used, according to these arguments, the present amount of capital employed by the firm is revealed and a better analysis of earning capacity can be made. Reporting fixed assets at replacement cost and calculating depreciation on this value, however, violates certain accounting concepts such as

the cost concept, the doctrine of conservatism, the concept of depreciation, and the concept of the balance sheet.

Depreciation calculations based on replacement cost usually provide a depreciation expense that is more nearly coincident with the actual cost of the amount of an asset consumed in operations than such a calculation based on historical cost. It is better because the historical cost depreciation rests upon a cost that entered the accounts some time in the past whereas the replacement cost depreciation is based on a current value; namely, the cost to replace the asset.

Opposing arguments. Often replacement cost is attacked on the grounds that such a value is inaccurate and subject to the vagaries of personal opinion. This accusation is usually leveled against the replacement cost concept because such a cost may be obtained in several different ways; for instance, specific index numbers may be used, appraisals may be utilized, and current market value may even be used. Because any one of these methods may be used, replacement cost determination is said to be an inexact procedure and is condemned for being inaccurate.

The cyclical fluctuation of prices is advanced by some accounting writers as evidence that replacement cost values in the statements are useless since asset values that are high now will be reduced to lower levels when the downswing in prices occurs. This argument overlooks the asymmetry of cyclical price movements and the constant upward drift in prices since the depression of the thirties.

In addition to the argument based on the cyclical pattern of prices, some accountants argue that a replacement cost for obsolete assets is impossible to obtain. However, the earning potential of the asset can be ascertained and the cost of a similar asset with the same earning potential as the present one is the replacement cost of the obsolete asset. Sometimes the cost of getting replacement cost estimates is used as an objection to the use of replacement cost, but this contention is not too important at the present time because of the availability of specific index numbers.

Lack of comparability is a further argument advanced against replacement cost. In essence, this contention notes the impossibility of comparing present earnings which are computed on the replacement cost basis with past earnings that were naturally computed using the historical cost basis. Such a situation could easily be avoided, however, if all firms that adopt the use of replacement cost in their statements prepare supplementary historical cost statements during the transition from historical cost to replacement cost.

In summary, this study has attempted through a careful analysis of the replacement cost concept to provide an insight into the reasoning advanced in support of the idea as well as an appreciation of the objections to the use of replacement cost. This analysis also lends some support to the conclusion that the accounting profession should continue to follow its present generally

accepted procedures until accountants decide to place current values on the balance sheet and the income statement.

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VITA

Germain Boniface Böer, the son of August Henry and Lena Mary Böer, was born November 19, 1937, in Rockne, Texas. He was graduated from Sacred Heart High School in May, 1955, and worked for a wholesale firm in Austin from September, 1955, until he entered St. Edward's University in September, 1956. During the period of his undergraduate work, he was employed as a seed inspector by the Texas Department of Agriculture. In 1960, he received the Bachelor of Science in Commerce degree from St. Edward's University; and in 1961, he received the Master of Business Administration degree from Texas Technological College. While completing the requirements for his graduate degree, he was a teaching fellow at Texas Technological College.

In September, 1961, he entered the graduate school of Louisiana State University. During the time that he was a graduate student, he also taught in the Department of Accounting. He is currently a candidate for the Degree of Doctor of Philosophy.

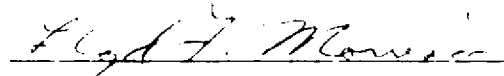
EXAMINATION AND THESIS REPORT


Candidate: Germain Boniface Böer

Major Field: Accounting

Title of Thesis: A Critical Review of the Replacement Cost Concept

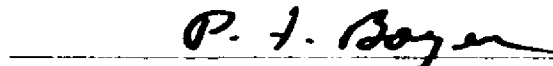


Approved:


Major Professor and Chairman


Dean of the Graduate School

EXAMINING COMMITTEE:



Date of Examination:

May 11, 1964